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PAPER TRADE JOURNAL

PAPER
THE MAGAZINE OF THE PAPER INDUSTRY
Is Combined with Paper Trade Journal

Vol. LXXX. No. 22 NEW YORK AND CHICAGO, MAY 28, 1925 { Per Annum, $4.00 / Per Copy, 10 Cents

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1A SULPHITE

"RED D" KRAFT

Scandinavian Pulp Agency, Inc.
342 Madison Avenue
New York

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TO prove our contention that PARIS BLACK will give better results than any other black coloring agent, and at considerably less cost, we are offering samples for test purposes, to those who are not already acquainted with it.

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NATIONAL DYES
FOR PAPER

PAPER TRADE JOURNAL
ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-THIRD YEAR

Published Every Thursday by the
LOCKWOOD TRADE JOURNAL CO., INC.

LESLIE R. PALME' PRESIDENT | GEO. S. MACDONALD VICE-PRESIDENT & TREAS | F. K. HOPPIE SECRETARY

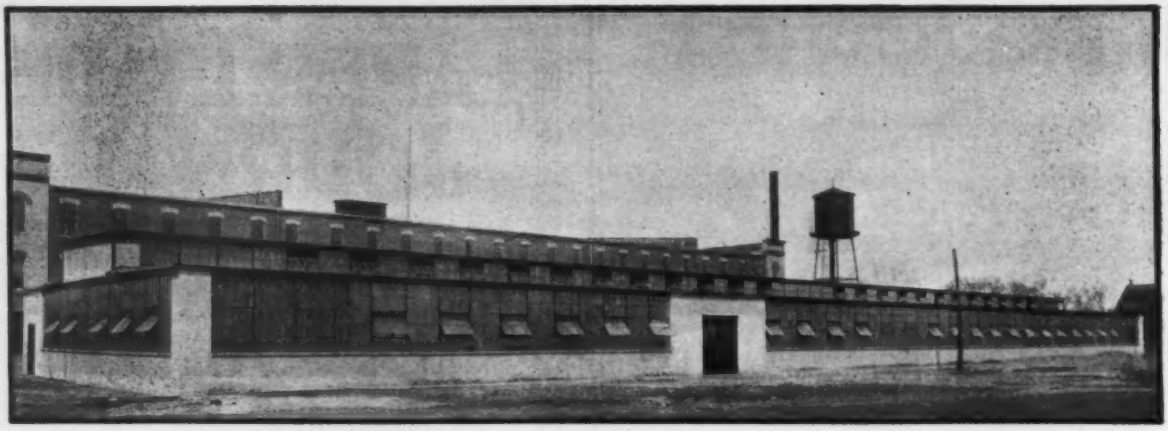
10 EAST 39TH ST. N.Y. U. S. A

TABLE OF CONTENTS

Copyright, 1925, by Lockwood Trade Journal Co., Inc.

News Print Cost Accountants and Engineers Meet	25
Charles River Paper Co. Buys Mill	25
A. L. Beals Resigns as Superintendent	25
Operations of Ontario Mills Limited	26
Great Lakes Co. May Defer Plant Construction	26
Plans for Annual of Pacific-Burt Co.	26
Safety Work at Plant of Mattagami Co.	26
Higher Value on Imported Kraft	27
S. D. Wells Takes New Position	27
New Agency for M. Gottesman & Co.	27
Canadian Paper Exports Decline	27
Paper Show Date Announced	27
Philadelphia Trade Still Improving	28
Several New Firms Join Paper Trade	28
Outing of Thomas W. Price Employees	28
Reading Mills to Sell Property	28
Plans for Beaupre Mills and Shops	29
Hydro Development Encounters Difficulties	29
Armstrong-Whitworth Mill to Start Soon	29
Busy Week for Secretary Kellogg	29
United States Forestry Progress	30
An Organization Built for Service	34
Los Angeles Plants Begin Expansion	34
New York Trade Jottings	36
OBITUARY	38
Boston Trade Slightly Improved	38
Construction News	40
George Tait Sent to Paris	42
May Issue Dumping Order	42
Government Paper Bids and Awards	42
Annual Meeting of Wrenn Paper Co.	42
Los Angeles Trade News	42
EDITORIAL	44
TECHNICAL SECTION	47
COST SECTION	57
Imports of Paper and Paper Stock	61
MARKET REVIEW	64
MISCELLANEOUS MARKETS	66
MARKET QUOTATIONS	68

Want and For Sale Advertisements, Pages 72, 73 & 74



Branch plant of The Chase Bag Co., Goshen, Ind., designed, built and equipped by Austin. Unusual construction performance on this project led to a repeat contract for a branch plant at Buffalo.

Completed Ahead of Time—

Not One Cent for Extras

Austin is now constructing a new plant at Long Island City for the Hygrade Corrugated Paper Products Company of New York. This is a modern fireproof daylight plant of reinforced concrete construction for the manufacture of corrugated paper boxes. This company's building project runs over a half million dollars.

WHEN Austin was awarded the contract for the construction of the Chase Bag Company's branch plant at Goshen, Indiana, the specified date for the completion of the work was May first.

The complete plant was turned over to the owners on April 15, more than two weeks ahead of time.

Austin now has under construction for this company another plant at Buffalo, N. Y. The Chase Bag Company did not pay one cent for extras on the plant at Goshen; the work was completed **ahead** of the contract date; their satisfaction with the quality of the work is evidenced by their award of this additional contract at Buffalo.

Under the Unit Responsibility Plan of building the owner is given—

1—a guarantee of a lump-sum price on the project complete;

2—a guarantee that the plant will be ready for useful occupancy by a definite, specified date, with bonus and penalty clause in the contract, if preferred;

3—a guarantee of quality of materials and workmanship throughout.

If you have a paper mill project in view, get in touch with Austin. Wire, phone or mail the coupon.

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PAPER TRADE JOURNAL

With Which Is Combined

PAPER

The Magazine of the Paper Industry

Vol. LXXX. No. 22 Thursday, May 28, 1925

News Print Cost Accountants and Engineers Convene

Some Unusually Instructive Papers Were Presented at Meeting Held in Milwaukee and Discussions Which Followed Were of Exceptional Value—Visitors Inspect "Lakeside Plant" of The Milwaukee Light and Power Company and Find Much to Interest Them in Pulverized Fuel System and Automatically Controlled Boiler Plant

[FROM OUR REGULAR CORRESPONDENT.]

MILWAUKEE, Wis., May 23, 1925.—The Cost Accountants and Engineers of the News Print Service Bureau held a meeting of more than usual interest at the Wisconsin Hotel, last Wednesday. The program was one peculiarly inviting and those present freely discussed the various papers, asking pertinent questions and exchanging valuable ideas on the subjects presented. Thirteen companies were represented and the attendance numbered something over thirty. News Print Service headquarters were represented by George D. Bearce, engineer, and Assistant Secretary G. A. Ware.

Steam Plant Costs

Convening at 10 a. m., first consideration was given to the subject of "The Relation between Steam Plant Costs and Efficiencies." An analysis of the operating results of several mills for 1923-24 illustrated by curves was laid before the meeting and an interesting discussion followed.

"Flow Meters" were next taken under discussion, M. Greenberg of the Bailey Meter Company speaking on "Installing and Checking Various Types of Flow Meters." This talk was illustrated by slides and proved of very great interest.

Checking Flow Meters

A paper prepared by H. D. Fisher, Chief Engineer of the New Haven Paper and Board Company, on "Special Method of Checking Flow Meters," was next read and a general discussion followed which was participated in by many of those present.

An intermission was then taken for luncheon. Upon reconvening the meeting was addressed by T. A. Marsh, Western Engineer of the Combustion Engineering Corporation, who had for his topic, "Stokers versus Pulverized Fuel—Comparative Cost of Installation and Operation." This talk, which was illustrated by slides, proved one of great educational value. Mr. Marsh laid emphasis on the fact that every installation had its own peculiar problems and that for that reason care should be taken to entrust the installation to a competent engineer. Otherwise, he pointed out, no great good might come of the change and it might be found that the new furnace did not offer any very great benefit over the old. The meeting adjourned after a discussion of "The Elimination of Large Inventory Adjustments."

Those attending the meeting availed themselves of the invitation to visit the "Lakeside Plant" of the Milwaukee Light and Power Company. This plant burns pulverized fuel entirely. There are two sections to its boiler plant, there being five boilers in each section. The five boilers in the older section are each of 1,400 h.p. and those in the newer section are of 1,800 h.p. each. The newer section is automatically controlled and retains a very high efficiency. The power development is from three turbines generators of 30,000 kw. and two of 20,000, making a total of 130,000 kw. Those making the tour of inspection found much to interest and entertain them.

Charles River Paper Co. Buys Roberts Mill

[FROM OUR REGULAR CORRESPONDENT]

WALTHAM, Mass., May 27, 1925.—The Charles River Paper Company has purchased the plant at Roberts which for many years was conducted by the John Roberts Paper Company and until recently was conducted by the Waltham Paper Mill Company, and the new concern will engage in the manufacture of a fiber paper product in different grades and for varied uses.

J. E. Perry, a paper commission merchant of Boston, is president of the new company and W. A. Luce, who is vice president of Morris-Ireland Safe Company and a directing official in the National Fireworks distributing company, is vice president and the company has a solid fianncial standing.

The new concern has taken over the plant which is one of the oldest in the country in the manufacture of paper stock and William J. Hill, who for many years has been supervisor at the paper mill, will continue as superintendent in the employ of the new company. A heavy wrapping paper and a fiber paper in different grades will be among the products of the concern and there is a big field for the material that is to be produced by the concern.

The property has been held of late by the Waltham Trust Company and the transfer was through officials of that banking house. The Charles River Paper Company is the latest of the new industries to come to this city, the negotiations for sale of the plant and property at Roberts having been completed last week. Extensive improvements have been started at the paper mill and the new company will equip immediately for the output of their product on a large scale.

A. L. Beals Resigns From Curtis & Bro.

NEWARK, Del., May 25, 1925.—Arthur L. Beals, for twenty-seven years the active superintendent of the plant of Curtis & Bro., Inc., paper manufacturers, has resigned. He will be succeeded by James Stewart, of Massachusetts. Mr. Beals is a member of the Town Council of Newark, where the mills are located.

Ontario Mills Operating on Somewhat Limited List

Business Dull and Distributors Complain at Dearth of Orders — Great Lakes Paper Co. May Defer Construction of News Print Plant—Pacific-Burt Co. Plans for Annual Meeting June 1—Mattagami Pulp and Paper Co. Taking Keen Interest in Safety Work

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ont., May 25, 1925.—Business in the paper line remains rather dull and mills have no large orders ahead but are operating on a somewhat limited list at the present time. A fair amount of trade is recorded by jobbers from week to week but, in neither volume nor multiplicity of orders, is it as large as distributors would like to see at this season of the year.

In the rag and paper stock arena, collections have fallen off. Supplies are not plentiful but the market remains fairly firm, all things considered. There are very few reductions in prices. Mixed papers and kraft manilas have dropped slightly but otherwise, there are no changes.

There have been some readjustments in prices on both m.f. and s.c. book papers in all grades, the drop being about a quarter of a cent. Other alterations are in sulphite bonds which on the lower grades have come down a cent, and, on the light and dark tints, a cent and a half. Nos. 1 and 2 ledgers have been moved up a cent or two. Writing and other lines remain unchanged.

May Not Erect New News Mill

The Great Lakes Paper Company, Fort William, which have for a year and over been operating a 170 ton ground wood pulp mill, may not go ahead with the construction of a news print plant at the present time. It is reported that the company has chosen to default on its obligation. Premier Ferguson of Ontario stated recently that the government would inquire why this course had been adopted. He added that they were going into the matter now to ascertain why the company was not observing its obligations. If it had a good reason for not constructing the paper mill right away, the government did not propose to be unreasonable with any industry but, if the company had not a valid excuse, it would be required to build the plant as speedily as possible, in view of the concession in limits which it had received. F. H. Keefer, M. P. P. for Port Arthur, has taken the matter up with the provincial authorities and says that the people at the head of the Great Lakes are intensely interested in the outcome.

Pacific-Burt Co. Annual

The annual meeting of the Pacific-Burt Company will be held in Toronto on June 1. The annual report, which has just been brought down for the year ending March 31, 1925, shows that the profits on operations amounted to $197,161 which compares with $225,866 for the preceding year. The decrease is accounted for by the less favorable conditions on the Pacific Coast, which continued throughout the year. S. J. Moore, of Toronto, President of the company, states in his annual report to the shareholders, that the Pacific-Burt Company was able to continue its volume of business, but, in order to do so, it was necessary to extend sales efforts at considerably increased cost. At the same time, expenditures were made in developing a new line of products, which promises to yield excellent returns. Mr. Moore adds that liberal provisions have been made for depreciation of plant and equipment and for amortization of patents. The factories of the company have been maintained in first class condition and their efficiency increased during the year.

Great Interest In Safety Work

Much interest is taken in Safety work among the employes of the Mattagami Pulp and Paper Company, at Smooth Rock Falls, and recently a successful rally was held under the chairmanship of B. L. Cope. Special Safety films were shown and short addresses delivered by A. P. Costigane of Toronto, Secretary-Engineer of the Ontario Pulp and Paper Makers' Safety Association, and Alex R. White, Chief Sanitary Inspector for Ontario. Mr. White congratulated the resiednts of the town on the fact that during 1924 they had the best health record in the province of Ontario for similar towns. S. R. Armstrong, general manager of the company, in his remarks assured the employes that the organization was greatly interested in accident and sickness prevention and was willing to back up the movement in any reasonable manner.

Good Results from Accident Prevention

An intensive accident prevention campaign is being carried on by the Spruce Falls Company, a branch of the Kimberly-Clark Co., of Neenah, Wis., at Kapuskasing, Ont. During 1924 the number of accidents in the mill was 66, involving lost time amounting to 562 days. For the first four months of the present year, there have been only three non-fatal accidents, involving lost time amounting to 11.5 days. A general meeting was held lately under the chairmanship of C. J. Baby, assistant to the general manager, E. J. Jones. Prior to the gathering, there was a parade consisting of a number of floats headed by a band and followed by a contingent of mill employes bearing suitable banners. "Paying the Price," a special Safety film, was shown and addresses made by A. P. Costigane, of Toronto, Safety-Engineer of the Ontario Pulp and Paper Makers' Safety Association, and Chief Sanitary Inspector, A. R. White of Toronto. During the meeting, Mr. Hoyman, safety director of the Kimberly-Clark Company, Neenah, Wis., presented to the employes a silver mounted shield and silver cup trophies won by the Spruce Falls employes in two accident prevention contests in which their opponents were the employes of the company's mill at Niagara Falls, N. Y.

Paper Men Hold Gathering

A largely attended meeting of the Ontario and Quebec divisions of the Canadian Paper Trade Association, was held at the King Edward hotel, Toronto, on May 19. Fred W. Halls, chairman of the Ontario division, presided and many matters of interest and importance was taken up. Questions, which will be discussed at the annual gathering to be held in October next in Montreal, were considered and reports received from the variouse centers in regard to conditions in business. It was the general opinion that trade had struck its lowest ebb and that from this out, there would be a gradual improvement. Collections are getting better and there are other signs that a change is on the way. R. I. Finlay, of Toronto, President of the Association, who is confined to his home with an eye trouble is making good progress.

Notes and Jottings of the Industry

H. F. E. Kent, of Toronto, former President of the Canadian Pulp and Paper Association, has been on an extended business trip to the Pacific Coast and to the branches of his firm in the west.

C. F. Buss, of Thorold, general superintendent of the plants of the Provincial Paper Mills, and James Raines, superintendent of the Montrose division, Thorold, spent a few days recently on a trip of inspection to the Mille Roches mill of the company.

E. A. Schofield of St. John, N. B., first vice president of the Canadian Paper Trade Association, spent a few days in Toronto last week on business.

Col. C. H. L. Jones, Col. P. B. Wilson and George R. Gray, of the Spanish River Pulp and Paper Mills, Sault Ste. Marie, Ont., were in Toronto last week and, accompanied by Secretary J. G. Gib-

son and T. H. Watson, one of the directors of the company, left for Dayton, Ohio, to attend an executive meeting.

W. H. Sheriff, of the Hodge-Sheriff Paper Company, Toronto, has returned from an extended trip throughout the prairie provinces and reports conditions in the paper trade gradually improving with a growing demand for kraft paper.

C. B. Powell, of the Appleford Counter Check Book, Hamilton, was in Toronto recently calling upon the trade.

The Canada Forwarding Company, Port Arthur, Ont., has loaded the first parcel of pulp wood containing one thousand cords for export to the American side. The Hammermill Paper Company recently loaded two thousand cords for shipment to Erie, Pa.

S. D. Wells Joins Paper Mill Laboratories

[FROM OUR REGULAR CORRESPONDENT]

MADISON, Wis., May 25, 1925.—Sidney D. Wells, who has been with the Forest Products Laboratory since 1911, has resigned to take charge of the Paper Mill Laboratories, Inc., of Quincy, Ill. The new laboratories are being organized by a group of strawboard manufacturers with mills in Indiana, Illinois, Iowa, and Kansas, to engage in research on their various manufacturing problems. In his new connection Mr. Wells will establish the odorless strawboard process, lately developed by the Forest Products Laboratory in cooperation with the National Association of Egg Case and Egg Case Filler Manufacturers in the board mills interested in the Quincy Laboratories.

Mr. Wells is widely known in the pulp and paper industry through his investigations at the Forest Products Laboratory on adapting the alkaline pulping processes to the southern pines and other new species. He is also the originator of a process for de-inking old newspapers for remanufacture into newsprint.

Mr. Wells joins the Paper Mill Laboratories on June 1.

M. Gottesman & Co. Agents for A. P. W. Pulp

The A.P.W. Pulp and Power Company, Ltd., which has recently completed a most up-to-date groundwood pulp mill at Sheet Harbor, Nova Scotia, has appointed M. Gottesman & Co., 18 East 41st street, New York, as its sole representative for the sale of its groundwood.

The product of the mill will be approximately 25,000 tons of high grade pulp annually. In addition to the splendid equipment installed under most expert supervision, the company owns large timber limits and has splendid water power, all of which will tend toward the production of a very desirable uniform product.

It will be the endeavor of the A.P.W. Pulp and Power Company, Ltd., to establish for its product the same good name that has been earned for the nationally famous A.P.W. Paper Company products.

M. Gottesman & Co. who will have the exclusive sale of the groundwood made at Sheet Harbor, have been established since 1886 and handle large quantities of wood pulp of every description.

Date for Paper Show

The American Paper and Pulp Association and the National Paper Trade Association have decided upon holding the Third Paper Industries Exposition during the week of February 22, 1926. The meetings of the two associations will be held at this time and the paper show will be staged as usual at the Grand Central Palace. New applications for space in the Exposition have already been received but exhibitors in the last Exposition will be given first opportunity to reserve their spaces.

It is highly desirable that applications be made as soon as possible. The old exhibitors have the option on the space they occupied at the last Exposition and the charge for space will be the same as on the former occasion. The service at the Exposition will be improved and the secretaries of both associations expect a larger attendance than at the former shows.

Canadian Paper Exports Decline in April

Total exports of pulp and paper in April were valued at $9,723,830, says a report from the Canadian Pulp and Paper Association. While this was a decline from the previous month, it was an increase of $379,938 as compared with April, 1924.

Total exports of pulp in April were valued at $2,570,270 and of paper at $7,153,560.

Figures for the month of April 1925 and 1924 are given below:

	April, 1925		April, 1924	
Pulp:	Tons	Value	Tons	Value
Mechanical	11,222	$315,183	12,139	$392,158
Sulphate	10,531	641,466	10,207	602,073
Sulphite, bleached	12,191	907,626	12,386	925,884
Sulphite, unbleached	13,361	705,995	14,221	746,624
	47,305	$2,570,270	48,953	$2,666,739
Paper:				
News print	93,882	$6,654,303	80,872	$6,084,093
Book (cwts.)	5,776	48,491	281	2,813
Writing (cwts.)	276	1,966	941	9,885
Wrapping	1,097	155,557	1,528	235,580
All other	.....	293,243	.....	344,782
	.....	$7,153,560	.....	$6,677,153

For the first four months of the current year exports of pulp and paper were valued at $48,306,984 as compared with a total of $45,911,364 in the corresponding four months of 1924, an increase of $2,395,620. Of the total value, exports of paper during these months amounted to $34,213,109 and pulp exports to $14,093,875. The principal gains were made by various grades of wood pulp, news print and book paper.

Details under the various classifications are as follows:

	4 Months, 1925		4 Months, 1924	
Pulp:	Tons	Value	Tons	Value
Mechanical	83,091	$2,448,245	62,382	$2,176,478
Sulphate	47,973	2,950,185	50,405	2,968,078
Sulphite, bleached	61,642	4,512,852	57,184	4,306,306
Sulphite, unbleached	78,359	4,182,593	64,458	3,417,213
	271,065	$14,093,875	234,429	$12,868,075
Paper:				
News print	446,804	$31,676,848	401,784	$30,289,025
Wrapping	6,428	908,813	6,651	1,006,981
Book (cwts.)	11,958	107,928	6,733	52,099
Writing (cwts.)	4,240	37,885	5,303	56,533
All other	.....	1,481,635	.....	1,638,651
	.....	$34,213,109	.....	$33,043,289

Exports of pulpwood in April amounted to 64,760 cords valued at $595,439, compared with 75,674 cords valued at $711,898 exported in April, 1924. For the first four months of the year Canada exported 539,861 cords of pulpwood valued at $5,040,315 compared with 482,788 cords valued at $4,555,058 in the corresponding four months of 1924.

Milton B. Marcuse Reelected Director

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., May 27, 1925.—Milton E. Marcuse of the Bedford Pulp and Paper Company was last week reelected director of the United States Chamber of Commerce at the 13th Annual meeting. In addition to Mr. Marcuse the Paper Industry was represented by the following:

H. E. Atterbury, Association of American Wood Pulp Importers, New York; Dr. Hugh P. Baker, Secretary American Paper and Pulp Association; Andrew G. Burry, Paper Box Manufacturers Association; D. C. Everest, American Paper and Pulp Association; Joseph A. Lowe, Falulah, Fitchburg, Mass.; O. A. Miller, National Paper Trade Association; and Robert E. Staebler, Kalamazoo Paper Box Company.

Higher Valuation on Imported Kraft

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., May 27, 1925.—Word received here is to the effect that the United States Board of General Appraisers has placed a higher valuation on importations of kraft wrapping paper, as it was imported into the United States undervalued. It is understood that some 30 importations were involved.

Continued Improvement Gladdens Philadelphia Trade

Paper Distributors Find Coarse and Fine Paper Grades Undergoing a Marked Betterment—Several New Firms Recently Added to Quaker City Paper Trade — Thomas W. Price Employees Have Day's Outing—Printers Entertained by Charles Beck Paper Co.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., May 25, 1925.—A more hopeful attitude towards the future outlook for the paper distribution trade is now taken by those engaged in the industry as a result of the continued improvement in demand for the coarse and fine paper grades generally. Ever since the local paper distribution became more active about two weeks ago there has been a steadily upward trend in the market.

Active Demand Looked for in Fall

It is anticipated that there will intervene, during the summer months, a resting period of the customary character due to the dullness of the vacation days but when this period has passed the trade is looking forward to the most active demand of the year.

The most active grades in the coarse paper market are the specialties as distinguished apart from the wrappings. There has been more frequent orders, of small proportions, from the more prominent of Philadelphia manufacturing industries designating that the summertime will see a revival in buying among these enterprises that have been out of the market for many months.

Stock Market Drifting

While no changes have been made in the prices of any of the grades of paper stocks there still exists a dearth of orders from the mills. It is due to the fact that no accumulations are on hand in the warehouses that the prices are holding so firmly. A few of the larger wholesalers have been shipping fairly large quantities of the cheaper grades of paper stock to the New England and Western Mills at the lower price levels that have prevailed for the past months and for supplies that were ordered several weeks ago but very little new business has been booked within recent days. Local dealers are apprehensive over the stock supplies for the Fall or late summer time when the mills usually come into the market for heavier orders. With no accumulations on hand in the standard grades and with but little prospects for securing any quantities from domestic markets and stock dealers have been advising the mills to buy now or else take a chance of being caught short handed and buying at considerably higher prices should there be any normal activity in the paper manufacturing industry at that time.

Small Firms Added to Trade

Within recent months there have been added to the Quaker City Paper Trade several new firms scattered throughout the outlying section that borders the central city business district. Most of these are in that part of the city adjacent to the new Philadelphia-Camden Bridge site where it is likely that there will spring up a new business traffic as a result of the direct communication between the State of New Jersey and Pennsylvania made possible by the Bridge now in course of construction. Among these firms are the Dayne Paper Company, 149 Poplar street, dealers in bags and coarse papers; the Federal Paper Company, 616 Spring Garden street, bags, twines, envelopes, waxed and paper specialties; Samuel S. Goldman, coarse papers and specialties, Arkey Specialty Company, 1434 Ridge avenue, bags, papers and ice cream specialties and C. Zackroff, 914 Callowhill street, coarse papers.

Benefits By Bridge

Excellent advertising facilities that will permit of extensive publicity from the traffic over the Philadelphia-Camden Bridge is afforded the Paper Manufacturers Company, which just a few years ago completed its mammoth half million dollar home on a site adjoining the huge span across the Delaware. Realizing that its position in direct view of the Bridge gave ample means for proclaiming its business to the world hereabouts the Paper Manufacturers Company, 5th and Willow streets, has spanned its roof front with a 50 foot sign, inscribed with its title and its wares. This sign which recently was erected is 20 feet high and can be viewed from several streets that converge at this point and railroad junction, and is of such proportions that it is visible from many squares away.

Outing for Thomas W. Price Co.

A day in the open was enjoyed by the members of the Vici Athletic Association, the sporting fraternity of the Thomas W. Price Company, 503 Ludlow street, a week ago Saturday when its 43 associates journeyed to Snyders Woods on the outskirts of the city to spend an entire day in recreational pastimes. The members partook of a picnic luncheon supervised and arranged by "Chef" Anthony Mink of the accounting forces and then enjoyed various contests. The baseball game was between the older men, and the younger employees, with the latter winning by a large score. Thomas R. Fort, Jr. and son, Norman W. Fort of the firm, joined in with the employees in the day's entertainment.

Beck Paper Co. Entertains Printers

As guests of the Charles Beck Paper Company, 70 or more printers in the Philadelphia trade gathered at the Bourse Restaurant, on Thursday evening to listen to the message which Jesse W. Clark, Head Field Director of the S. D. Warren Company, brought from the Boston headquarters regarding Direct Mail Advertising. President Leon Beck of the Beck Paper Company presided and after a brief introductory address presented the Warren representative to his guests.

Reading Paper Mills to Sell Property

Announcement is made by the Reading Paper Mills of its intention to dispose of by public sale on June 4, a large parcel of property in the city of Reading, Pa., which formerly was purchased for use in conjunction with its paper manufacturing plant. The property which will be disposed of consists of a two-story brick building at Front and Court streets, equipped with elevators, sprinkler system, and a two story brick warehouse, 163 by 40 feet with railroad siding adjoining the former structure with another manufacturing building and a large plot of ground, all included in the same parcel of ground.

News Notes of the Trade

Theodore Taylor, who recently joined the newly organized Satterthwaite Paper Company, 231 Chestnut street, and who has been confined to his home for the past five weeks because of an accident, is again able to be at his desk. Mr. Taylor was badly cut on the ankle when a paper cutter blade slipped from his hand and struck his foot.

A new state sales representative has been added to the organization of the Saxe Paper Company, through the acquisition of Dan G. Kohn to the forces. Mr. Kohn is an old trade associate having previously been connected with Wilder Brothers and the Schwartz Paper Company.

Leonard Raymond, of the Raymond McNutt Company who for the past month has been touring the middle West on a combined business and pleasure trip, has returned to headquarters. He made the rounds of the Great Lake Region and all the Central West as far as Nebraska.

Montreal Reports Plans for Beaupre Mills and Shops

Ste. Anne Paper Co., Ltd., Has Been Duly Authorized To Go Ahead With Construction Work—Difficulty Over Grand Falls Proposed Hydro Development Becomes More Complicated—Armstrong-Whitworth Mill to Start Soon with Daily Capacity of 400 Tons of News Print.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., May 26, 1925.—Letters patent have been issued by the Lieutenant-Governor-in-Council to the concern which will be known as the Ste. Anne Paper Company, Limited, with a capital of $3,600,000. The new company has been authorized to construct mills and shops at Beaupre, a few miles from Ste. Anne de Beaupre, and carry on the industry of manufacturing pulpwood, paper, construction material, etc. The company is headed by Toronto interests, where there is a branch. The promoters are Messrs. Emile Andrew Wallberg, manufacturer; Henry Herbert Horsfall, manufacturer; Thomas Alex. Cass, manager; Harry John Leggie, accountant, and Alfred Ivor Simmons, accountant, all of Toronto. The promoters of the new company have also applied to the Government for rights to construct a wharf at Ste. Anne de Beaupre, and engineers of the Department of Public Works have been sent to the scene of future operations to look over the ground and report back to the authorities.

New Brunswick Asks Federal Help

Attorney-General Rand, of New Brunswick, has been in conference with the Minister of Justice at Ottawa asking Federal intervention in the difficulty which has arisen over New Brunswick's proposed hydro development at Grand Falls. When the matter came before the International Joint Commission in Montreal last week, the State of Maine raised the contention that as the River St. John is partly international, it is entitled to a proportion of the power to be secured from the projected development. Eugene Lafleur, K. C., counsel for New Brunswick, urged that Maine has no sovereign right in the case in point and that, if it has any right at all it could be asserted only when New Brunswick desired to store water in its territory. The attitude displayed by the United States Government gives the question an international aspect, and that is why it is being suggested today that the Dominion Government intervene and be represented before the Commission. It was brought up briefly in the House yesterday.

New Mill at Cornwall

Another outlet for the sulphite pulp manufactured in Canada is being established at Cornwall, Ont. The mill of Courtalds, Limited, which is being constructed in that city, will be finished within the next two months. Upon completion part of the new factory will be given over to the manufacture of artificial silk made from Canadian pulp. The amount of sulphite pulp, which has been utilized in this industry, has shown a rapid increase during the past few years.

Armstrong-Whitworth Mill Starts Soon

In a recent interview, John Stadler, managing director of the Newfoundland Power & Paper Company, stated that the Armstrong-Whitworth Paper Mill at Cornerbrook, Newfoundland, will start running next month. The daily capacity will be 400 tons of news print. The official opening will take place in August, at which a number of the English directors and a delegation of international pressmen will be present. With the waters of Grand Lake at their disposal, the company will have 100,000 h.p. available immediately and another 50,000 h.p. at small cost when required. The yearly consumption of timber, Mr. Stadler stated, will be about 180,000 cords and the available forest supplies are sufficient to last over fifty years.

Comment on Straw Pulp

The Grand 'Mere Journal, the official organ of the Laurentide Company, in commenting on news print made from straw pulp says:

"Broadcast through the British trade papers, the information that an edition of the Morning Post had been printed on paper made from De Vains straw pulp naturally attracted some considerable attention in the paper-making world. There was no qualification of the above statement, so that many naturally believed that the paper was made entirely from straw pulp.

"A sample of the paper came into the hands of the Laurentide research department, which tested it for sulphite and ground wood and found the following content, which is approximate: 50 per cent ground wood, 20 per cent sulphite and 30 per cent straw.

"At the same time a British chemist had come to a somewhat similar result and had written indignantly to the World's Paper Trade Review (England), giving the content of the alleged straw paper as 60 per cent ground wood, 20 per cent sulphite and 20 per cent straw.

"A correspondent of this same review writes rather blusteringly and lamely in defense of the straw process, to the effect that if such good paper could be made with only 30 per cent straw pulp—which he admits is the content—it must be pretty good straw pulp. This was hardly the issue, and the comment of a Canadian paper mill executive that the boasted straw pulp paper is hardly a commercial proposition is a sound one.

"It will be necessary to manufacture the straw pulp very cheaply to replace ordinary news print with a paper made of only 50 to 60 per cent ground wood and the remainder chemical pulp, either the straw pulp or sulphite. It is hardly necessary to state that a paper made of 40 to 50 per cent chemical pulp of any kind is somewhat better than standard news print, withal somewhat more expensive."

Trees for the Prairies

The twenty-third annual distribution of seedlings and cutting of trees for shelter belts and windbreaks planting in the Prairie Provinces has been completed by the Dominion Forestry Branch from their nurseries at Indian Head and Sutherland. The Sutherland farm this year established a record of 2,600,000 being shipped to 3,050 applicants. The forestry station here has shipped 2,400,000 trees to 2,555 applicants, making a total shipment of five million trees.

Busy Week for Secretary Kellogg

Secretary R. S. Kellogg of the News Print Service Bureau has a busy week mapped out for him next week, being scheduled to make addresses before several organizations at widely distributed points. He will leave New York City, Sunday night, making his first address on Monday morning at Richmond, Va., at the annual meeting of the National Editorial Association.

From Richmond he will jump to Dayton, Ohio, where he will be a speaker at the annual Wilart party to be held at the Dayton Country Club. The following day he is scheduled to speak before the Women's Advertising Club at Toledo, Ohio, and on Thursday he will be at Buffalo, N. Y., talking to the League of Advertising Women. Friday he will be among the speakers at the convention of the American Paper and Pulp Mill Superintendents' Association at Niagara Falls. On Saturady morning Mr. Kellogg will get back to New York and spend a couple of hours at the offices of the News Print Service Bureau but his strenuous week will not quite be over for him as that afternoon he will be required to speak at his home-town, Yonkers, at the annual Boy Scout Rally to be held there. Incidentally Mr. Kellogg is greatly interested in the Boy Scout movement and is an officer in the Yonkers' Boy Scout Council.

Recent Progress and Trends in Forestry in the United States*

By J. W. Toumey

I. Introductory

When any nation wills to practice forestry, to the extent of making present expenditures for possible future gains, the conservation of forests becomes an established fact. The intensity of its practice ebbs and flows with every shift in public opinion and financial support. Thus, most nations at one period have neglected or even disposed of public forests, exposing them to unrestricted exploitation, and at other times have restricted exploitation and increased them through purchase. At one period the forest capital is increased only to be depleted at another. These ebbs and flows synchronize with changes in public opinion due to economic or other pressure.

A public opinion favorable to forestry practice rests on a fancied or real need for forests in National defense or for present or future economic use. In the early 19th century, when individualism ran riot in central Europe, the sale of all public forests was seriously considered in Germany. Due, however, to the foresight, influence and forest intelligence of Cotta, Hartig and a small group of influential citizens, public opinion shifted and saved Germany from possible forest destruction.

Following the Napoleonic wars, French forestry was badly neglected, and the forest capital greatly reduced. The development of an excellent system of forest laws early in the 19th century, supported by public opinion, was the basis for the progressive development of French forests down to the outbreak of the recent war.

Great Britain gave but little attention to forest conservation prior to the 20th century, but the recent war brought about a public recognition of the importance of forests in National defense. The public recognition of this need found expression in large expenditures for forest extension.

The rapid reduction in the accessible supplies of forest products in the northern hemisphere during the past half century, and the constantly upward trend in prices of all classes of forest products, is bringing a change in public opinion toward the necessity for forestry practice. Today every important nation is moving forward in the practice of forestry. The rate of progress, however, varies greatly in different nations because the practice of forestry involves present expenditures. Without expenditures forestry is academic, the practice is impossible.

II. The Forestry Situation in the United States

The United States, still having considerable bodies of virgin timber, has found it difficult to arouse a public consciousness that wills the practice of forestry. The habits of thought that came with years of extravagant use and abundant supply changed slowly. A rich forest capital has been depleted and values have advanced until today the price of certain classes of wood products actually exceeds the cost overseas. It is only in recent years that owners of forest property, both public and private, have been willing to invest money in obtaining reproduction and in organizing forests for sustained yield.

When we look back over the past twenty-five years we witness what appears like a remarkable advance in forestry practice in the United States. When we compare this advance, however, with the magnitude of the problem of supplying America with her certain future requirements for forest products, it is evident that scarcely more than a beginning has been made. This may be appreciated by comparing the present annual consumption of wood with the annual growth. The U. S. Forest Service places the annual withdrawal from American forests at more than 25 billion cubic feet of wood, or between four and five times the annual growth. We are still depending chiefly on the old timber in our rapidly diminishing virgin stands for the greater part of our consumption. We are just beginning to organize our cut-over and burned areas for successive crops and to cut existing stands in a manner to attain regrowth.

Approximately 850 million acres of virgin forest were within the present boundaries of the United States when settlement began more than three centuries ago. During the long period of land settlement and agricultural expansion, forests had nowhere been organized for continuous yield. Early forest exploitation was largely confined to land suitable for agriculture, but gradually extended to nonagricultural land as well, and since 1850 our rapidly increasing requirements for home consumption and export have come in increasing amounts from absolute forest land. The habit of destroying the forests to make way for agriculture passed over into destroying the forests on nonagricultral land as well; land unsuited for agriculture and of no economic value except for the continuous production of forest crops.

In 1800 our annual wood consumption was relatively small and made but little imprint on our vast areas of virgin forest. In 1900 the United States led the world in timber consumption and export. Today we are taking from our forests more than one-half of the sawmill products consumed by all nations combined.

III. Can America Maintain Her Forest Supremacy?

Can America continue to withdraw more than 25 billion cubic feet of wood annually from her rapidly vanishing forests without dangerously reducing her forest capital? It appears that she can not, were every acre of forest in the United States as well organized and as intensively managed as are the forests of central Europe. Without nation-wide forestry practice, without its extension beyond anything hitherto practiced on private as well as public forest land, our future requirements for wood can not be obtained from our own forests.

IV. The Task of American Forestry

The great task of American forestry is to build up a forest capital and develop a growing stock on all forest land that will provide, at least in a large measure, for the economic needs of the future. This means doubling, tripling, even quadrupling the annual growth before the remainder of our virgin stands are depleted. The rapidity with which this task is completed rests with public opinion fortified by financial support.

V. The Trend of Public Opinion Favorable to Forestry Practice in the United States

Public opinion favorable to forestry practice is shaped by men, events and economics. The importance of conspicuous leaders favorable to forestry practice cannot be overestimated. The leadership of Roosevelt and Pinchot in shaping public opinion in national forestry and Rothrock in state forestry has been particularly conspicuous. Under the leadership of these men and others and with the assistance of various forestry organizations a formerly hostile or indifferent press has gradually become a champion of forestry practice. This is notably true of such publications as the *New York Times*, the *Public Ledger* and the *Boston Transcript*. There is need at present for more such influential leaders to maintain and strengthen public opinion. This need, however, is being supplied in a measure by our educational institutions and forest research stations.

In the short space of twenty-five years more than twenty educational institutions in the United States have offered courses in

* Delivered before the meeting of the British Association of Toronto.

MATHIESON System

The Practical Usefulness of Engineering Vision

THREE years ago the Mathieson Company, unaided and with all its resources, undertook the development of a multiple unit tank car for the larger consumer of Liquid Chlorine—an achievement in Chlorine equipment originating in the broad vision and foresight of the Company's engineers and executives.

The scope of that engineering vision included not only the advantages of the ton container to the tank car user of Liquid Chlorine (who existed at that time only in the paper industry) and to the user of standard cylinder equipment, but also the adaptability of this car to consuming problems not then even recognized by other producers.

Now, in April of this year, the Department of Water Supply of the City of New York discontinued their consumption of Liquid Chlorine in cylinders at Ashokan and began chlorination from shipments received in the Mathieson Multi-Unit Tank Car—*the first municipality to adopt this economy.*

By July first of this year, six of the leading textile mills in the progressive Southern manufacturing field will be using this type of equipment for bleaching with Liquid Chlorine.

The story of the world search for Bromine and of the Dupont Company's equipment of the seagoing ship "Ethyl" with chlorination apparatus, is not complete without mention of the fact that she went to sea supplied with Liquid Chlorine in ton containers.

An organization that is conspicuous for such broad and practical vision is of service, first to its customers, and second to the consumer at large. The development of this convenient and economical Chlorine equipment has, in itself, made many new friends for the Mathieson Company; the problems of users of other industrial chemicals, in any field and in any quantity, are assured the same intelligent study and attention.

The MATHIESON ALKALI WORKS Inc.
250 PARK AVE. NEW YORK CITY
PHILADELPHIA CHICAGO PROVIDENCE CHARLOTTE

EAGLE THISTLE PRODUCTS

Deal Direct with the Manufacturer

Caustic Soda · Liquid Chlorine
Bicarbonate of Soda
Anhydrous Ammonia
Soda Ash · Bleaching Powder
Modified Virginia Soda
Aqua Ammonia

forestry. Most of these still continue their work in forestry and are progressively strengthening and extending their courses. In the space of fifteen years eight well equipped and efficient research stations have been organized in the United States Forest Service, with research in silviculture as a large part of their program.

Research has rapidly developed within the last ten years in a number of educational institutions, such as Harvard and Yale, that operate demonstration and research forests. The recent remarkable advance in the facilities for education in forestry and the equally remarkable advance in research indicates the trend of public opinion favorable to forestry practice, because both forestry education and forest research rest on public support.

Public opinion favorable to forestry practice made great progress during the war and since, due to a fuller realization of the need of domestic supplies of wood in large amount for national defense.

The remarkable industrial development of the United States in recent years, with the accompanying increase in wood requirements has brought about a progressive change in the cost of wood to the consumer. The upward trend in consumption has been matched by the upward trend in prices. So long as wood was relatively inexpensive the consumer thought little of the source of supply, but as cost increased he began to think of the source of supply and the possibility of its meeting the future requirements of his industry.

The users of wood in the United States are today more than heretofore looking ahead for supplies for the future requirements of their industries. This is evident in the present activities in the pulp industry and in the practice of forestry that this industry is now undertaking. It is also evident in the conservative lumbering coming into practice by the Great Southern Lumber Company, the Kirby Lumber Company, the New England Box Company and many other companies and individuals in eastern, western and southern United States.

I have purposely dwelt at some length on the factors shaping public opinion favorable to forestry practice in the United States, because in a republic forestry is impossible without the support of public opinion combined with financial support.

VI. Progress and Trends

Progress and Trends in National Forestry: The greatest and most far-reaching forestry measure as yet accepted by the American people became a law in 1891 when the National Congress gave authority for the segregation of National forests from the unoccupied public domain. Under this law a net area of approximately 135 million acres is now detached from the public domain in the form of national forests. This does not include approximately 21 million acres of National forests in Alaska and approximately 2 4-5 million acres acquired or in the process of being acquired by purchase under the Weeks Law. This large acreage of National forests is now organized for sustained yield or is in the process of organization.

Unless public opinion favorable to forestry practice meets with reaction the United States can look forward to a progressive expansion in national forests, both by purchase and by further segregation from the public domain. This expansion, however, cannot meet our needs for forests organized for continuous yield. It cannot meet more than a part of our certain future requirements for forests products. The United States cannot depend on national forests alone for its future timber supply.

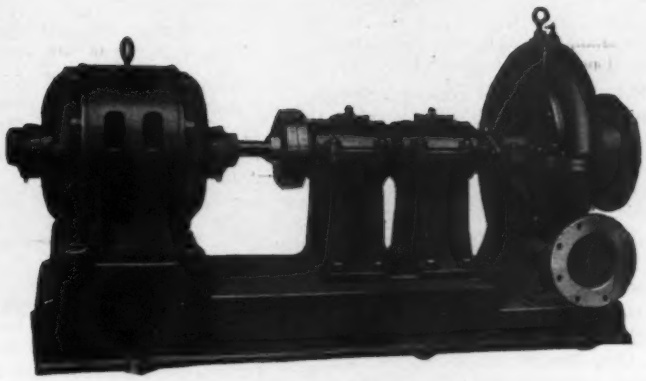
Progress and Trends in State Forestry: It is only within the past two decades that state forestry has made material progress in the United States. The present area of state forests and parks and of other state forest land is a little more than 8½ million acres. New York possesses 1½ million acres of state forest and Pennsylvania well over one million. The present trend is a progressive increase in state forests through purchase and gift. It is believed that the use of land within the state is largely a responsibility of the state, and that state forests paid for and controlled by the people of the state are closer to them than federal forests controlled from outside the state. Most state departments of forestry, as at present organized, serve four important functions, namely, the control and management of the state forests, the organization and operation of the state forest fire service, assistance to private owners in the organization and management of private forests and propaganda for better forestry. In many states as in Massachusetts, New York, Pennsylvania and Connecticut, the state department of forestry is strengthened through cooperation with and assistance by a strong state forestry association, of large local membership. These organizations are not only centers of propaganda for better forestry, but are important forces in securing effective state legislation and in raising funds for state and communal forests.

Progress and Trends in Communal Forestry: Although communal forests in the United States were established as early as the beginning of the 19th century, notably the one at Brunswick, Maine, the ownership of forests by counties and municipalities has appealed to the public only within the past ten years. The movement for such forests now under way in many parts of the country indicates that communal forests will in time become an important factor in forest conservation in the United States. Nearly half a million acres, mostly in small holdings, is now owned as municpal and county forests and the area is rapidly increasing as illustrated by recent activities in Massachusetts. Since 1913 twenty-three towns and cities in this state have secured communal forests through purchase and gift. In 1923 eighty additional towns and cities voted to appoint committees to study and report on the possibility of securing communal forests. To date nearly 30 per cent of the municipalities of Massachusetts have taken some action on the securing of communal forests. This activity on the part of the public to establish communal forests is apparent in such widely separated states as Massachusetts, Illinois and California. The public is finding out the communal forests serve purposes that cannot be met as well by other classes of public forests. The sense of community ownership in nearby forests that serve for recreation as well as for direct utility purposes, is of far-reaching educational value and a great factor in creating public sentiment favorable to forestry practice.

Progress and Trends in Private Forestry: The policy of the American republic has been to further every measure that has had for its purpose the distribution of the unoccupied public domain in small holdings under private ownership. To a large measure this has applied to absolute forest land as well as to grazing and agricultural lands. As a result of this policy approximately four-fifths of the forests of the country is privately owned. These privately owned forests are in small holdings attached to farms and known as woodlots or in larger holdings, often many thousand acres in extent in nonagricultural regions. Although national, state and communal forests, organized for sustained yield will be very important factors in providing for our future timber supply, the futility of depending on public forests for all or even the larger part of our future requirements is daily becoming more apparent. The greater part of our supplies must continue to come as they now do from privately owned timber land. If they do, radical and far-reaching changes from existing methods of operating private forests must take place. The practice of forestry by private owners must become nation wide and silvicultural practice must go hand in hand with fire protection.

Powerful economic forces are now working toward making private forestry possible and profitable. When certain classes of wood products, notably pulp, can be imported from Europe at prices that seriously compete with our own products as they now do, the possibility of continuous yield from private forests becomes more inviting. At present prices pine can be grown in the New England States, and in the Lake States, at a fair profit, and the area over which this is possible is certain to increase with the progressively

FREDERICK PUMPS



It Handles Stock and No MAYBE About It

For the mill that handles heavy stock and wants to move it quickly and economically it is the pump.

You will not question this statement after you have seen it in operation.

In the first place it is heavier and more sturdily built than the standard pump to which you are accustomed.

It's shaft is oversize; it's two pedestal bearings extra large; it's impeller carefully and ruggedly made; it's casing thick and hard.

It's the Frederick Centrifugal Stock Pump

The Frederick Iron and Steel Company

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In Canada—DOMINION ENGINEERING WORKS, LTD., Lachine, Que.

upward trend in timber prices. With the relatively low cost of absolute forest land in the United States and the progressive increases in wood prices, stands of well managed timber are certain to be rown by private owners on a rapidly increasing scale. I believe, literally thousands of plantations of pine and spruce will be made in New England by private owners within the next two decades. At present nurseries are unable to meet the demands for forest planting stock. I also believe that when young natural stands of desirable species, such as pine and spruce, are suffering from competition with forest weeds such as gray birch, poplar, and soft maple, cleanings will increase. Already the practice of making cleanings in pine stands in New England is rapidly increasing.

The two factors which tend to check this progress are the uncertainty of the fire hazards and our antiquated forest taxation laws. The establishment of new forests and the organization of existing forests for sustained yield by private owners concerns the public even more than the private owner, and the public is beginning to appreciate this basic fact and act accordingly. Hence cooperation of the state and national governments through the state with the private owner has, within the year, become a part of our newer forest policy. Massachusetts, Connecticut, New Hampshire and other states have laws relieving plantations of commercial species from excessive taxation for a period of years. As yet, however, forest taxation in many parts of the country and particularly in New England mitigates against private forestry practice and changes in existing tax methods are desirable.

The recently enacted McNary-Clark law was framed for the purpose of stimulating private forestry. How can the United States check further forest devastation on privately owned land, improve existing second growth on such land and reforest the many millions of acres of private land now completely devastated? Two solutions have been offered. One, coercion on the part of the public, with laws compelling private owners to practice forestry, to so manage their forest property that devastation will be eliminated and continuous yield attained. The other, cooperation between the public and the private owner whereby the production of timber crops will be attained by acceptable silvicultural practice.

Although it is generally accepted that sweeping changes must be made from present methods of handling private timber lands, the public is not in accord as to the measures and means by which these changes can be effected most economically and advantageously. Various bills before our legislative bodies during the past ten years have aimed at a higher degree of regulation and control of private forest lands, by the public. Others aim to attain the results by cooperation. It is certain that legislation in one or the other direction is essential if regrowth be attained on private forest land, adequate for the future needs of the country.

The present trend in public opinion in the United States appears to be away from coercive measures, toward cooperation as expressed in the McNary-Clark bill. This bill, which became a law this year, provides ways and means for the National government to cooperate with the states in assisting the private owners of forest land in applying protective and silvicultural measures in managing their forests. This National legislation must be supplemented by state legislation which has for its purpose the reducing of the fire hazard to an insurable risk and the placing of forest taxation on a basis which will encourage silvicultural practice. In short, the states must provide larger funds.

In the past emphasis has been placed on the National forests and the development of the Federal forest service, more recently on state forests and the development of the state departments of forestry. Emphasis is now being placed on communal forests. In the future it will be placed on private forests and means for their development.

With four-fifths of the forests of America privately owned, and with our policy of land ownership in private holdings, the development of private forestry is the only solution for an adequate future timber supply from domestic forests. The realization of this fact is expressed in present tendencies by the nation and state in obtaining state wide fire protection and in assisting private owners in silvicultural practice. Also in present activities in modifying existing laws relating to forest taxation. Although as yet, little progress has been made in attaining acceptable management of private forests, a beginning has been made. With continued cooperation with the private owner on the part of the nation and state, the possible progress in private forestry in the United States is almost unlimited. The present trend is in this direction and it is here that great progress most likely will be made in coming years.

An Organization Built for Service

The Brooklyn Fibre Syndicate, Inc., on Decatur street and Irving avenue, Brooklyn, N. Y., is an organization "Built for Service." The concern combines jute board in thicknesses ranging from .060 to .120 and sells the surplus from its combiner, above its own needs, to the paper dealers and paper box manufacturers who cater to the needle trade.

The organization is equipped with a modern plant made up of a Beloit Combiner, Hooper Press, two Swift Machines, and a two-unit Creasing and Slotting Plant, the lathes specially designed for small, medium sized, special, and hurry-up orders. This entire plant is comfortably housed in a large brick building with a factory floor spreading over an area of approximately 30,000 square feet. At one end of the building is a railroad siding which facilitates their freight shipments.

The plant was formerly owned by Brockway-Fitzhugh-Stewart, Inc., and was purchased by William R. Wisser who is the president of the new company. Mr. Wisser has been in the paper, twine and board jobbing business close on to twenty years. He, at one time, was treasurer of the Wisser Boxboard Company, Inc., New York City, and is connected with the Paper Twine and Board Company also of that city. He is, at present, the president of the Merchants Paper & Twine Company, Inc., a jobbing concern in New York.

Mr. Wisser is encouraging paper dealers to get orders for solid fiber boxes. His firm, in many instances, manufactures and ships these solid fiber boxes to the consumer, allowing a reasonable profit to the paper dealer, and yet protecting this same dealer on reorders. This has grown to be quite a business, and some of the largest paper jobbers have become steady accounts of the Brooklyn Fibre Syndicate.

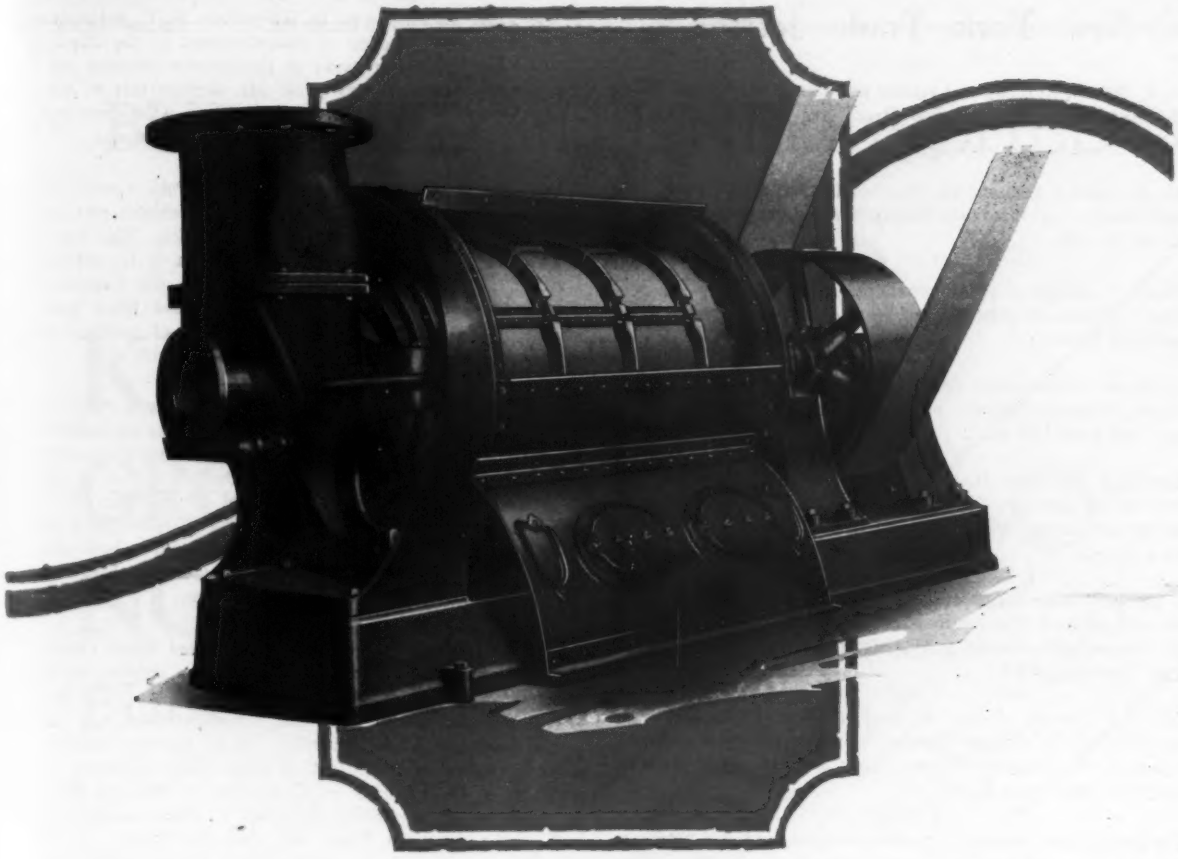
Mr. Wisser especially encourages this activity with those paper dealers who are not located in large business centers, but who are on the edges of large cities or in small towns where large factories are situated.

Paper mills and paper specialty manufacturers are themselves large consumers of solid fiber shipping baxes, and such articles as drinking cups, cigarette tissue, toilet tissue, carbon and writing papers, and other articles, too numerous to mention are being at the present time packed in solid fiber shipping cases.

Two Plants Start on Expansion

[FROM OUR REGULAR CORRESPONDENT]

Los Angeles, Cal., May 25, 1925.—The plant and producing capacity of the Los Angeles mill of the California-Oregon Paper Mills Company, has started on a program of extension and expansion which will add a third to the capacity of the plant and 50 per cent to the printing capacity. A new warehouse building has been started by the Austin Company of California, and will be completed within ninety days. They plan the installation of a new eighty-inch Fourdinier paper machine and a new four color rotary printing press. The paper machine has been built by the company under the direction of its own engineers.



Immediate installation is justified

The Bird Pulp Screen is as good for pulp as the Bird Screen is for paper.

You can save quantites of power by using Bird Pulp Screens.

THE Bird Pulp Screen produces cleaner, stronger stock in greater quantities and uses far less power than other screens

Replacement of existing equipment with Bird Pulp Screens often reduces power consumption as much as fifty per cent. The magnitude of this saving is causing many pulp mill men to consider immediate installation. It can be proved that this forward step is justified.

Ask us to submit layouts and estimates to cover your requirements.

BIRD MACHINE COMPANY
South Walpole Massachusetts

BIRD MACHINERY

New York Trade Jottings

L. R. Wilson, secretary and general manager of the Abitibi Power and Paper Company, Ltd., of Montreal, was a New York visitor last week.

* * *

H. H. Curtiss, manager of the Consolidated Water Power and Paper Company of Wisconsin Rapids, Wis., spent several days last week in this city.

* * *

Philip T. Dodge of the International Paper Company has been elected a member-at-large for two years of the National Industrial Conference Board.

* * *

E. Severin of Galveston, Texas, vice president and manager of the Southern Trading Company, paper importers, was a caller on the New York trade last week.

* * *

Executive Secretary Hugh P. Baker and Assistant Secretary Porter of the American Paper and Pulp Association will be among those present at the Wilart Party to be held at Dayton, Ohio, on June 2 and 3.

* * *

A new mill office was opened in this city the first of the month under the name of The Smith Paper Company, Charles F. Mansfield, representative, located at 511 5th avenue. The telephone number is Vanderbilt 5200.

* * *

Assistant Scretary Porter of the American Paper and Pulp Association was in Chicago Tuesday, in attendance upon a regular meeting of the American Waxed Paper Manufacturers' Association held at the Drake Hotel.

* * *

The Henry Gade Corporation, dealers in paper and twine, announce that they have moved from 376 Broome street back to their old home at 349 Broome street which was the birthplace of the Henry Gade Corporation in 1875. The telephone number is still Canal 8257.

* * *

Executive Secretary Hugh P. Baker of the American Paper and Pulp Association will be one of the speakers at the convention of American Paper and Pulp Mill Superintendents to be held at Niagara Falls, June 4, 5 and 6. President Norman W. Wilson of the Association will be among the banquet speakers.

* * *

At a meeting of the Board of Directors of the United Paperboard Company held Thursday, May 21, a dividend of 6 per cent was declared on the preferred stock of the company and a dividend of one-half per cent on the common stock. Both dividends are payable July 1 to stockholders of record at the close of business June 5.

* * *

Herbert Nilsson of Stora Kopparbergs Bergslags Artiebolag, Falun, Sweden, is now in this city, being on an extended foreign trip. The company with which he is connected, originally engaged in copper mining operations and its corporate existence dates back 700 years. Its plants now include iron works, saw mills and paper mills.

* * *

The Southern Exposition held at the Grand Central Palace, May 12-24 to display the beauty and usefulness of the South, included among its exhibitors the Albermarle Paper Manufacturing Company. In the space allotted to the City of Richmond, Va., the Albermarle Paper Manufacturing Company showed "Albermarle" blotting papers and rolls of colored "Dixie" Kraft in twenty different shades.

* * *

Executive Secretary Hugh P. Baker of the American Paper and Pulp Association and Warren D. Bullock of the Import Committee of the Paper Industry went to Watertown, N. Y. yesterday to attend an informal meeting of manufacturers at the Black River Valley Club. Dr. Baker spoke on the business situation and problems of the paper industry while Mr. Bullock told of the work that is being done by the Import Committee. A luncheon had been arranged by J. E. Barron in honor of the two guests.

* * *

The officials of the American Paper and Pulp Association were greatly interested this week in a news print exhibit sent them by the Southern Newspaper Publishers' Association. This was in the form of an issue of "The State" of Columbia, S. C., published on May 11. The paper was manufactured by the Carolina Fibre Company of Hartsville, S. C., from pine and black gum pulp mixed. The paper was unusually tough and of excellent general appearance although possessed of a slightly blueish tinge.

* * *

The executive offices of the American Paper and Pulp Association have at last settled down after several weeks of turmoil while the carpenters have been preparing for the transfer to new qaurters. The offices are still located on the sixth floor at 18 East 41st street, but are now in the front of the building where they afford better light and other advantages. Dr. Baker has a spacious office which will give him a more attractive atmosphere while the others express themselves as well pleased with the change and the new quarters which have been assigned them.

* * *

The thirteenth annual meeting of the United States Chamber of Commerce held in Washington last week was attended by several prominent members of the paper industry. Milton E. Marcuse, president of the Bedford Pulp and Paper Company, was reelected to the directorate of the Chamber. D. C. Everest, secretary and general manager of the Marathon Paper Mills Company, who is president of the Chamber of Commerce of Wausau, Wis., was among those who attended. Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association was paid a pleasing recognition at the meeting when he was named one of a committee of two on credentials to represent the National Trade Associations.

* * *

The Salesmen's Association at its weekly luncheon at the Hotel Belmont on Monday, gave most of its time to a discussion of plans for the golf tournament for New York members. It was decided to stage this tournament on June 11 at the Ardsley Country Club and each member of the New York Division will be asked to participate. There will be luncheon at the country club after which the play will be commenced. The men who make the eight best net scores will later compete in a National Tournament with eight men from each of the other three divisions. The business reports made at the luncheon indicated a better tone in practically all paper lines with what is regarded as a much more favorable outlook than has been in evidence for some time.

* * *

An interesting New York visitor at the present time is Dr. Eric Wahlforss, who is in this country in search of a position to do research work in the paper industry. Although only 30 years of age, Dr. Wahlforss has already accomplished much of a worthwhile nature. On December 10, 1919, he graduated at the Technical College of Finland with the degree of Chemical Engineer. He graduated from the University of Helsingfors on April 22, 1920, with the degree of M. A., in chemistry, minerology, geology, physics and elements of higher mathematics. He obtained his M. A. degree by his thesis on "The Newer Researches in Lignin Substances." He graduated from the University of Helsingfors in August 1924, obtaining a degree as Dr. of Philosophy. At various intervals he has worked in different plants at various capacities which would tend to give him an insight into the paper industry.

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Obituary

Seth Wheeler

ALBANY, N. Y., May 23, 1925.—Seth Wheeler, president of the A. P. W. Paper Company and for thirty-seven years a member of the board of trustees of the Albany County Savings Bank, died yesterday morning at his home, 246 Lark street, at the age of eighty-seven. His health had been failing for a year but his condition was not considered serious until last Saturday when he returned from his last visit to his paper plant. From Monday, his birthday, he gradually became weaker until his death.

Despite his age Mr. Wheeler had remained active in his business until last week, going to the office daily and exercising leadership in all the business affairs.

As an inventor of machinery Mr. Wheeler gained wide fame. His inventions for perforating and winding paper on rolls are used throughout the world. He established agencies of the Albany Perforated Wrapping Paper Company in England and made annual trips to that country and other foreign countries, supervising the work of his plants. He was recognized internationally as an authority on paper.

Mr. Wheeler was elected a member of the board of trustees of the Albany County Savings Bank in 1888 and served as vice president of that institution for two years. From 1908 to 1919 he was president of the board, succeeding the late Jasper Van Wormer.

After his retirement as president of the board he retained close touch with the bank's affairs and his advice on financial matters was sought frequently. He was a director of the New York State National Bank at the time of his death.

Resolutions were adopted yesterday by the board of trustees of the Albany County Savings Bank extending to members of his family "sincere regret and deep appreciation of his manliness and courage in always standing for the right."

Mr. Wheeler was born in Chatham, son of Alonzo and Harriet Bishop Wheeler, and was educated in the Chatham district schools and the Albany academy. In 1849, the Wheeler and Melick Company, of which his father was head, moved to Albany. Seth Wheeler conducted the business of his father until 1872, when he withdrew to devote his time to the development of machinery which later gave him fame as an inventor and led to the organizing of the A.P.W. Paper Company.

He was director of the A. C. Cheney Piano Action Company of Castleton, a member of the American Society of Mechanical Engineers, the Fort Orange club and Masters lodge of Masons.

He is survived by two daughters, Mrs. Howard Martin of Albany and Mrs. Joseph S. House of New York; two sons, Seth Wheeler, Jr., vice president of the A.P.W. Paper Company, and William A., treasurer of the company; a sister, Miss Anna Wheeler; a granddaughter, Mrs. Porter Fearey of Ardsley-on-the-Hudson and three grandsons, Archibald B., Thomas B. and Edgar T. Wheeler.

The funeral was conducted in the home, Monday afternoon at 2 o'clock. Burial was in Troy.

Dr. Baker Speaks at Watertown

WATERTOWN, N. Y., May 27, 1925.—Generally good prospects ahead for the paper industry were forecast here today by Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, at a luncheon conference of paper manufacturers of the Black River Valley. Dr. Baker indicated factors causing a hesitant market and showed that in parts of the industry, conditions were not satisfactory, but emphasized the fact that all indications are that general business conditions are better today than a year ago.

"Every evidence," he said, "is that fundamental conditions are sound, and with American business on a good, sound basis, there is every reason to think that paper will follow the trend of other business, which is unquestionably showing an advance after a rather ragged spring. Money, transportation, agricultural and commodity conditions are far from bad, and evidence is beginning to appear that the downswing in prices which has been in progress so far this year has about run its course. We seem to be facing a short period, at least, of continuing or even advancing prices. This applies of course to general business, but there is no reason why paper should not follow, as it always has done, the general trend of business.

"Looking over the various divisions of the paper field, there is found considerable complaint of low prices and lessened demand. We can not, however, afford to overlook the fact that production in all grades has been high, and if there is a steady and consistent demand for a product, there can be no legitimate reason for pessimism. This year's decline in prices has been more moderate than was the case in 1924.

"Possibly, after all, we have been feeling not so much a depression, as a failure to realize hopes for a period of aggressive activity. Compared with expectations, business may have been slow, but there has not been the relative depression felt in 1924. All in all, if we judge conditions correctly, we can anticipate a better summer and fall, following a less difficult spring, than in 1924."

Demand in Boston Somewhat Improved

BOSTON, Mass., May 25, 1925.—The past week has shown some improvement in most lines and with optimistic reports coming in from the outlying sections paper merchants in this district are feeling more encouraged. There was noticed particularly a demand for coarse grades, a division where good business has been needed for a long time.

Houses dealing in the fine grades also shared in some good orders, coming chiefly from printers and publishers. The printers just now are being pressed for special work and this in turn brings heavy demands upon those houses dealing with the printers. Prices in these lines show little change. There was a slight weakness in certain kraft prices, however, some quarters reported.

The situation in the old paper division is unchanged, more or less confusion existing and little business. The mills are buying small quantities and the prices are unsatisfactory. The rag market appears weak but has more business than the waste paper.

Box board men report an upward trend in their lines and with industrial centers showing some improvements this division is preparing for better future business. Houses dealing with greeting card material are having busy days with demands for higher grades and larger quantities.

Altogether Boston's situation is on the up grade, according to several merchants and May bids fair to equal, if not go ahead of May last year.

International's Stock Conversion

The holders of the outstanding 6 per cent preferred stock of the International Paper Company are now entitled, upon a cash payment of $10 a share, to exchange their shares for a like number of shares of the cumulative 7 per cent preferred stock of the company.

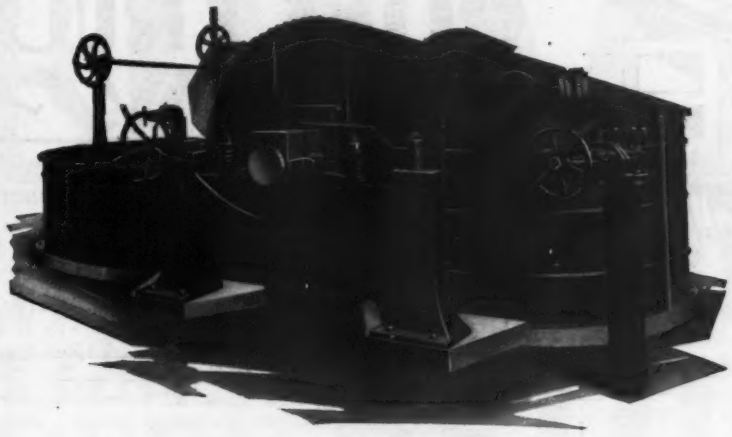
This 7 per cent preferred stock, authorized at the recent special meeting of the stockholders of the company, is preferred as to assets and dividends over the existing 6 per cent preferred stock and common stock, is subject to redemption at $115 a share and accrued dividends, and is entitled to full voting power.

The Board of Directors of the company has declared an initial quarterly dividend on the new 7 per cent preferred stock payable July 15, to stockholders of record of July 7.

Panelyte Board Co. Burned

A brief press dispatch under date of Trenton, N. J., May 22, says the entire plant of the Panelyte Board Company was destroyed by fire. Damage $100,000 to $300,000. All insured.

"Your paper is made



The Dilts Approved NEW TYPE Beating Engine

in the beaters"

NEW TYPE

This NEW TYPE Beating Engine embodies all the best features of Dilts modern design and construction: Tub of cast iron with inclined concrete bottom; NEW TYPE backfall and deflecting hood, Roll (optional) bandless, keyed type with cast steel heads and special alloy, heat-treated fly bars; Dilts patented one-piece rigid stands and spring cushioned lighter bars; heavy, adjustable water-chambered bearing boxes; special reinforced split pulley with internal flanges.

The NEW TYPE Beating Engine accomplishes remarkable results and uses no more power than the standard Hollander type of beater.

You certainly should have these NEW TYPE Beaters in your mill.

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HEAVIER FURNISH

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Dilts

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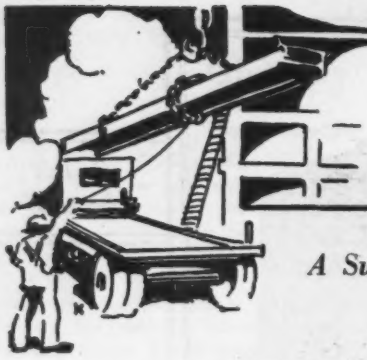


CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Monroe, Mich.—The Consolidated Paper Company has completed plans and will proceed with the erection of a new mill on local site, comprising a main multi-story unit, estimated to cost close to $300,000, including equipment.

Chicago, Ill.—The H. S. McCracken Box and Label Company, 923 West Nineteenth Place, has acquired the three-story and basement factory of the Morgan-Gardner Electric Company at Shields Avenue and Twenty-second Street, with adjoining one-story building, for a stated consideration of $195,000. The property totals 145,880 sq. ft., and will be used as a new plant by the purchasing company at a later date, providing considerable increased output over the present factory. The Morgan-Gardner company will continue to occupy until time is arranged for the change.

Trenton, N. J.—Fire, May 22, destroyed the plant of the Panelyte Board Company, Enterprise Avenue, near the city limits, manufacturer of paperboard products, with loss reported at close to $250,000, including equipment. Tentative plans are under way for early rebuilding. D. Manson Sutherland is president.

Nutley, N. J.—George La Monte & Son, 229 Kingsland Road, manufacturers of special papers, have asked bids on a general contract for the erection of a new steam power house addition, to be one-story, estimated to cost $25,000. The Fletcher-Thompson Company, 542 Fairfield Avenue, Bridgeport, Conn., is architect and engineer.

Minneapolis, Minn.—The Backus-Brooks Company, Builders' Exchange, Minneapolis, is perfecting plans for the erection of a new sulphite pulp mill at Kenora, Ont., comprising a number of buildings, with machine shop and miscellaneous structures to develop a capacity of about 30,000 tons of material per annum. The project will also include a hydroelectric power plant with rated output of about 17,000 hp. The new works will be operated in conjunction with the present plant at this location, and is estimated to cost in excess of $7,000,000, including equipment.

Baltimore, Md.—The Bartgis Brothers Company, 6 South Greene Street, manufacturer of folding paper boxes and containers, has leased the plant of the J. C. Eichman Manufacturing Company, Bush and Wicomico Streets, heretofore devoted to the manufacture of plumbing equipment. The Bartgis company will take possession early in September, and plans to remodel and improve the structure for a new plant. It is said that the present factory will be removed to this location, with the installation of considerable additional equipment. The Eichman company will construct another plant on adjoining site.

Chicago, Ill.—The Isgo Wall Paper Corporation, 2115 West Twenty-first Street, has awarded a general contract to Kadeshewitz and Buchel, 1342 Independence Street, for the construction of a two-story top addition to its storage and distributing plant, location noted, 50 x 125 ft., to cost in excess of $40,000. Work will be placed under way at an early date. Dubin and Eisenberg, 14 West Washington Street, are architects.

Toledo, Ohio—The Chase Bag Company, Woolworth Building, New York, N. Y., manufacturer of paper and other containers, has acquired a locate site at Nebraska and Brown Streets, Toledo, as a site for the construction of a new mill, for which plans have been drawn. It will be one-story, 200 x 500 ft., sawtooth roof type, estimated to cost about $35,000. Work will be started soon.

Boston, Mass.—The Atlas Paper Company has removed to its new building at 11-17 Ashland Street, where increased facilities will be provided. The business will be expanded.

Lynn, Mass.—The Hoague-Sprague Corporation, 97 Albany Street, Boston, Mass., has leased additional property at Lynn, where a factory heretofore has been operated, totaling about 20,000 ft. of floor space, and will use for increased production in the line of cardboard boxes for the shoe trade as well as other service. The extension will be equipped immediately with necessary machinery.

Hudson Falls, N. Y.—The Union Bag and Paper Corporation, Woolworth Building, New York, N. Y., plans for an increase in capacity at its local hydroelectric power plant, totaling about 45,000 hp., resulting from the proposed regulation of waters of the Hudson River by the State in this district. A portion of the increase will be used for paper mill service, and the remainder disposed of to a public utility company.

Boston, Mass.—Tileston and Hollingsworth, 49 Federal Street, has awarded a general building contract to the Morton C. Tuttle Company, Park Square Building, for the construction of an addition to its Hyde Park paper plant, comprising a two-story and basement structure, 100 x 120 ft., to be used primarily for storage and distributing service. The estimated cost has not been announced. The company will also build another two-story structure to be used for de-inking service.

Three Rivers, Que.—The Wayagamack News Company, Ltd., operated by the Wayagamack Pulp and Paper Company, Ltd., has broken ground for its proposed new mill, for the production of news print. The plant will be of two-machine type, with ground wood pulp mill and accessory structures.

New Companies

Albany, N. Y.—The Peerless Paper Products Corporation, has been incorporated with a capital of $30,000, to manufacture and deal in paper specialties. The incorporators are W. J. Cohen, J. W. Coplan and S. Samuels. The company is represented by S. E. Aronowitz, attorney, Albany.

Boston, Mass.—The Charles River Paper Company has been incorporated with a capital of $50,000, to manufacture paper products. The incorporators are George J. J. Clark, W. A. Luce and Jesse E. Perry, Boston.

Lafayette, Ind.—The Haywood Tag Company has been incorporated with capital of 2,000 shares of stock, no par value,

REPLACE WORN-OUT EQUIPMENT *with the* MODERN "BELOIT"

A careful observation must be made of each machine as to its condition and the amount of deterioration it has sustained through age and service. Other factors that must be considered are its utility in the particular plant and its degree of obsolescence in comparison with modern machinery of a similar kind.

THE extract of the article reproduced above is taken from Paper Industry of March, 1925. Its author, L. H. Olson, vice president of the American Appraisal Co., is an authority who knows such problems intimately.

The degree of obsolescence in comparison with modern machinery of a similar kind is the basis that determines when equipment is to be discarded and replaced with new. Four of the paper mills that have had the NEW BELOIT FOURDRINIER in operation, have re-ordered. It is an indication that practical operation has fully demonstrated the wisdom of their choice.

Some of the accomplishments attained are enumerated for the benefit of those who have not had the opportunity of seeing the NEW BELOIT in action:

Adjustable, Removable, Shakeable
Three months' wire life at 650 feet and over per minute
A better formed sheet at higher speed
A 15% increase in production the first days of use
A saving of 595 man hours in wire changes alone
A saving of 51 production hours in wire changing
An increase of 153 tons production from time saved
60.4 points on a 60-lb. sulphite sheet
26 to 44% more than the "point to the lb." on Kraft

Now is the time to investigate. Send for Bulletin 9.

The NEW BELOIT FOURDRINIER

Beloit Iron Works — **Established** — BELOIT IRON WORKS BELOIT WIS. — **Beloit, Wis., U.S.A.** — **Since 1858**

to manufacture and deal in paper tags and kindred specialties. The incorporators are Marshall, George F., and George P. Haywood, Lafayette.

New York, N. Y.—The Arkadia Paper Products Corporation has been incorporated with a capital of $10,000, to manufacture and deal in paper products. The incorporators are A. A. and N. Weiss and W. J. Hammell. The company is represented by M. M. Cohen, 276 Fifth Avenue, New York.

New Haven, Conn.—The Quaker Hill Paper Company, 865 Chapel Street, has been incorporated with a capital of $50,000, to manufacture and deal in paper products. The incorporators are Arthur W. Chambers, New Haven, and R. B. Cole, West Haven, Conn.

Brookhaven, N. Y.—The Ronkonkoma Paper Company has been incorporated with capital of $50,000, to manufacture and deal in paper specialties. The incorporators are A. and M. Pedisich and D. Seibert. The company is represented by R. S. Pelletreau, attorney, Patchogue.

Coal City, Ill.—The Atlas Wall Paper Mills, Inc., has been incorporated with a capital of $125,000, to manufacture and deal in wall paper and kindred paper products. The incorporators are Herman C. Grassle and Carl A. Miller. The company is represented by Frederick R. Adams, 318 Barber Building, Joliet, Ill.

Financial

Bogota, N. J.—The Bogota Folding Paper Box Company has arranged for a change of name to the Denson Carton Company, Inc.

New York, N. Y.—The Majestic Mills Paper Company, 464 Broome Street, has filed notice of reduction in capital from $200,000 to $100,000.

Watertown, N. Y.—The St. Regis Paper Company has arranged for an increase in capital from $1,000,000 to $5,000,000, with 4,000 shares of common stock as heretofore, for expansion.

Evansville, Ind.—The Tri-State Paper Company has arranged for an increase in capital from $15,000 to $30,000.

George Tait Sent to Paris

GLENS FALLS, N. Y., May 25, 1925.—George Tait, president of the Tait Paper and Color Industries, Inc., of this city, a leading figure in the paper industry of Northern New York was honored by the New York State Associated Industries, Inc., at its annual meeting last week in Syracuse by being appointed delegate to the International Industrial and Arts Exposition which will be in session throughout the summer in Paris. The appointment will carry a commission from the United States Department of Commerce and the designation is tantamount to a government mission. Mr. Tait plans to spend the month of August in Europe attending the Paris Exposition and transacting business in the interests of the Tait Paper and Color Industries.

The convention of the Associated Industries further honored Mr. Tait by electing him a member of the board of directors. At the conclusion of the Syracuse convention Mr. Tait left Syracuse on a business trip to the Pacific Coast and Canada. Other paper men included in the Glens Falls delegation to the convention included John J. McCabe, Clifford W. Higley, and Milton K. Huppuch, of the Standard Wall Paper Company.

May Issue Dumping Order Against German Bag Paper

WASHINGTON, D. C., May 27, 1925.—It is understood that New York Customs Officials have recommended to the headquarters here that a dumping order be issued against importations of German sulphite bag paper. Up to this time no action has been taken at the Washington Office. This is understood to be one of the cases which was taken up by the Import Committee of the Paper Industry. The evidence presented by this Committee must have been sustained or the recommendation for the order would not have been sent to Washington.

Bids and Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., May 27, 1925.—The Government Printing Office has announced the following paper awards:

The Carew Manufacturing Company has been awarded the contract for furnishing part of 1,810 pounds of white index bristol board at 26 cents; and the Hano-Weinkratz Company the remainder at the same price. The Maurice O'Meara Company will furnish 500 sheets of 24 x 38, paraffin manila paper at 11c.; bids for these items were received on April 20.

The Old Dominion Paper Company will furnish 338 reams of various sizes pink laid mimeograph paper at 9.35 cents per pound, bids for which were received on April 22.

Barton, Duer & Koch Paper Company will furnish 6,100 pounds, 200 reams of 17 x 28—30½ No. 24 white bond paper at 15.9 cents per pound, bids for which were received on April 24.

The R. P. Andrews Paper Company will furnish 19,988 pounds of 19 x 24—38, white mf. lithograph printing paper at 6.59 cents per pound, bids for which were received on April 27.

Barton, Duer & Koch Paper Company will furnish 9,450 pounds (300 reams) of 24 x 38—31½ white bond paper at 18.14 cents per pound and the R. P. Andrews Paper Company will furnish 1,940 pounds of 22 x 28—194 red cardboard at $37.25 per thousand. Bids for these items were received on May 1.

The R. P. Andrews Paper Company will furnish 14,500 pounds of 21 x 32—14½ No. 8 onion skinned paper, at 22.73 cents per pound and the Esleeck Manufacturing Company will furnish 6,250 pounds of 21 x 32—12½ No. 7 white manifold bond paper at 41 cents per pound. Bids for these items were received on May 8.

Wrenn Paper Co. Hold Annual Meeting

MIDDLETOWN, Ohio, May 25, 1925.—At the annual meeting of the stockholders of the Wrenn Paper Company recently, John Gibson, Jr., was re-elected president and treasurer of the company, Edward T. Gardner, vice president and J. J. Hollowell secretary.

In connection with the annual stockholders meeting, the purchase of a considerable portion of the capital stock of the Wrenn Company by G. H. Meade of Dayton and Edward Gardner of this city was announced.

The directors of the company for the coming year will be John Gibson, Jr., E. T. Gardner, J. J. Hollowell, Henry S. Meade and W. V. Darling of New York.

Acquisition of holdings in the Wrenn company by Messrs. Gardner and Meade took place some months ago, it was stated.

The organization continues to function without change of policy under the guidance of Mr. Gibson, who with the late Austin Smith purchased the mill fifteen years ago.

The Wrenn mill is said to be one of the most profitable paper mills in the country.

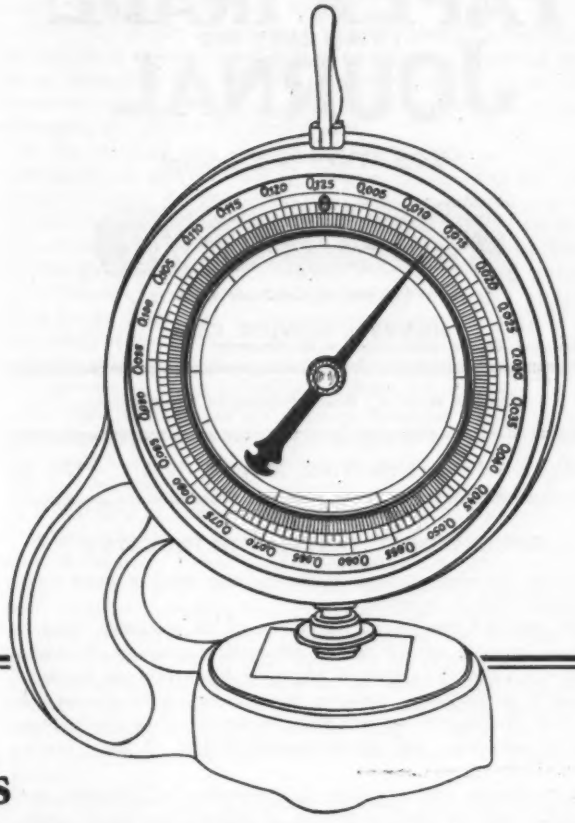
Los Angeles Trade News

[FROM OUR REGULAR CORRESPONDENT]

LOS ANGELES, Cal., May 25, 1925.—Both coarse and fine paper divisions of the local market were unusually quiet during the past week, with only a normal amount of buying being done. Prices remained steady in all lines with only a slight drop recorded in toilet papers.

N. L. Brinker, who has been connected with the wrapping paper division of the Zellerbach Paper Company, Los Angeles branch, for the past fourteen years, has severed his association with that concern to go with the Los Angeles Paper Manufacturing Company. He will act as sales manager of the latter firm, which manufactures roofing papers.

The Sierra Paper Company line has been taken over at San Diego, Cal., by W. H. Ostrander, who has opened offices at 711 East street in that city. Mr. Ostrander was formerly with the Fred H. French Paper Company of Los Angeles for the past year.



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DOES it prove that you are making a paper of uniform caliper with a corresponding excellence in printing qualities, or is your product of decidedly irregular thickness?

If it is of uniform or fairly uniform caliper how much time and labor does this approximate excellence represent?

The importance of making printing papers of even thickness and of eliminating foam spots and lumps cannot be overemphasized. The same thing holds true of waxing papers, and in fact, any paper is better and stronger, and production costs are lowered, if it is even in caliper and contains no lumps, etc.

You can *easily* make a sheet *uniform in thickness across the entire width of the wire*, avoiding even the thin edges next the deckle, and at the same time *eliminate foam spots and lumps*, if you equip your Fourdrinier Harper or Yankee with a *Voith High Pressure Stock Inlet*. Moreover your cost of production will be *lowered*.

You surely cannot let this statement go unchallenged. Question it. *Write us today* that you're from Missouri. We'll be glad to give you full particulars and undeniable proof. You owe it to yourself to know.

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PAPER TRADE JOURNAL
ESTABLISHED 1872

With Which Is Combined

PAPER

The Magazine of the Paper Industry

HENRY J. BERGER, Editor

Member A. B. C. Audit Bureau of Circulations

Vol. LXXX New York, May 28, 1925 No. 22

EDUCATIONAL TRAINING IN INDUSTRY

Perhaps the most important educational movement in recent years has taken place in industry.

The need for this lies in the failure of the workshop, used in a broad sense, to provide proper industrial training for its young employees. The old system of apprenticeship which was formerly in vogue in European countries, never gained much foothold in the New World, and has gradually disappeared with the development of machinery and the consequent division of labor everywhere.

Apprenticeship was essentially a combination of education for citizenship and industry, a process of learning by doing, under which a minor was taught a craft or trade by working with a master. This was the only way in which a craft could be perpetuated when hand labor was the chief dependence in industry.

A craftman must be acquainted with all the processes necessary to make a finished article. An apprentice worked for his master, and in return received instruction in his trade. Thus a reasonable balance existed and a definite period of time was fixed for the accomplishment of the object. This is a very important consideration, because it gives definiteness to a relation which otherwise might become too lax. Apprenticeship ceases when labor degenerates from education to routine.

Another function of apprenticeship was the development of character and good citizenship. Originally it was a preparation for life and not a preparation for a technical pursuit alone. The English guilds formerly acted as the moral and educational supervisors of the apprentice, in some cases requiring church attendance. Peel's Child Labor Law of 1802 was entitled "An Act for the Preservation of the Health and Morals of the Apprentices and Others Employed in Cotton and Other Mills and Factories." This law stipulated that educational training should be given every day with religious instruction "one hour every Sunday." The system was designed to prepare the apprentice for society as well as for his trade. Nor should it be forgotten that the state assumed supervision over the apprentice until he reached the age of twenty-one. This does not mean that the state took over the task of education at all, as now exists in our public schools system.

In our far more complex life, with its dangers to adolescence, we are turning young people loose from seven to ten years earlier than in Colonial times.

Apprenticeship, beginning with the relationship of father and son in Babylon, developed in the time of the Roman Empire into a contractural relation, under which the apprentice received a money reward as well as instruction. Thus he became a wage earner. This change of status weakened the concept of filiality.

During the Middle Ages apprenticeship became a matter of corporate control upon the part of the guilds, which thus acquired property rights in time if not in person. At one time or another, it has possessed some features of slavery which have gradually vanished with the emancipation of the institution of slavery.

With advancing civilization and the coming of the machine era, the period of service was shortened, and by the further step of division of labor, anything like apprenticeship vanished, since now the worker's duties consist in repeat operations for which he is "paid by the piece," and very little instruction is needed to fit him for his task.

Thus, the training of the individual in industry, both for the industry and for life itself, became more and more difficult. The problem of the future will be to devise a system which will modernize the good features of the old institution and adapt them to modern methods in industry.

It is difficult to fix a definite date for the advent of industrial revolution in America. The transition from hand to machine basis, and from the domestic to the factory system was slow. Perhaps the initial step in the movement was the opening of Slater's cotton mill in 1794, but it was not till the springing up of the factory towns of Pawtucket, Lowell and Lawrence between 1820 and 1830 that America experienced her first real taste of the factory system. That period witnessed for the first time regularly organized working-men's parties, and such well known labor leaders as Fanny Wright, Robert Dale Owen, the Evans brothers and Seth Luther.

The effect of this development divested apprenticeship proper of its educational features and added children to industry not even nominally apprentices.

If the ordinary craftsman was deeply affected by the substitution of power driven machinery for his hand tools, much more deeply and subtly was the apprentice, who found himself without special attachment to his master, and thrown entirely upon his own resources. Thus he became a wage earner.

Within the shop the change was equally great. The master was no longer in personal touch with his boys. The very nature of machine production had fixed a gulf between the two. They now stand in the relation of employer and employee. The training the "apprentice" received changed no less than his station.

Machine production does not require the all round skilled workman because it increases the division of labor by splitting up the job. Therefore, the opportunities to exercise general knowledge and skill are very much less.

The purely cultural training of the apprentice fared even worse since the master did not see his apprentice from one week's end to the next. Thus came into being, first the secular Sunday schools, then the public day schools and the established fraternal societies for their own betterment.

Gradually apprentices became helpers to journeymen, tending to a decrease of the more expensive labor by the substitution of the poorly and partially trained cheaper labor to the profit of the management. This of course fostered trade unionism for the regulation of laboring conditions for its own protection.

With each new step in furtherance of this object, making more costly manufacturing processes, resort was had to protective tariffs and improved mechanical appliances. Thus has come into being our modern industrial system, in which many conflicts between labor and capital, so called, have arisen and where the rights of the public at large have been largely ignored. This situation has been followed by legislation on all sides to remedy prevailing evils.

Gradually it has become apparent that a proper regard for society as a whole must be considered and this necessitates an enlarged view and study of existing conditions and plans for betterment.

Thus we follow a system of teaching in society with hand tools

in the early days of industry, through its life course to the birth of modern industry with its huge machines and corporate forms with its analytical divisions into parts, which by its very essence and nature has subordinated labor, until training for a particular job is but a matter of days at most, and becomes mere routine with a loss of much incentive. Many loose thinking advocates of vocational education have ignored this fact and have assumed that there is limitless demand for skilled workers. Such is not the case. Modern industry does not require a large percentage of all round skilled workmen.

What substitute or adaptation of apprenticeship is it possible to devise for this modern condition? Has specialization increased or decreased the amount of skill required? What kind of training is needed to fit men and women for modern industrial life?

It is difficult if not impossible to establish a model type even for a single industry. The general trend of specialization and skill, however can be shown, and may be divided into three parts (1) machine building, (2) machine using and (3) machine repairing.

Thus in large scale production there is a sharp differentation in the skill required of the working force. A large number of highly trained and competent engineers are needed in the drafting room, but for the most part muscle and endurance, rather than skill and dexterity are required. Even these are no longer essential in many processes, where automatic devices have been applied, often with more than human reliability. One has but to observe the operation of the subway trains in New York City, the automatic telephone switch board, or the automatic loom to realize how little they depend upon skilled labor, or any labor at all for their operation. But while such a situation makes less demands upon the knowledge of the operator, it creates an important class of skilled workmen to invent, devise and keep in repair these machines and devices. Their knowledge and skill must be far greater than that of the old all round craftsman, while the operator needs very little training.

Closely allied to this situation ,comes the word "service" in its modern much advertised significance in the social order, wherein many things are done for the individual, which formerly he did for himself, until he loses the knowledge, if he ever had it, and the knack of providing for his most obvious needs. This again adds largely to that class who do not have to think for themselves, and increases moderately those more skilled and trained in society.

The amount of skill which the average worker must possess is still further reduced by the system of scientific management. Motion study, standardization of tools and equipment, the standard task, routing and functional foremanship, all further divest the individual operative of the knowledge and judgment formerly required, and concentrate it in the supervisory force. In consequence of this, the training and experience of the planning and supervisory force has been enormously increased.

The leaders in the vocational education movement have hitherto been reluctant to face the facts of modern large scale production with its specialization of labor. They have been trying to equip the boy with an education he does not need and cannot use. The sooner they cease to think in terms of the handicraft era, the greater will be the chance of creating an educational system that is worth while. However, one should beware of jumping to the other extreme and concluding that the modern worker needs no education. This would be an even greater error.

The youthful worker needs, perhaps, more education than he ever did before, but its nature is far different from that the older apprentice required. It must be broader in some ways, and narrower in others. It must include more training in industrial life, in hygiene, civics and religion; narrower in trade training. What is very important is that the factors composing industrial training should be discovered and combined over a common denominator as far as possible. A common knowledge of certain factors, as general instruction in the care of machinery, the regulation of speed, some knowledge of mechanics, safety appliances, protection of health, insurance, and the operation of compensation laws, would be a fixed asset not only to himself, but to his employer and the community, and would be worth more to him, make his labor more mobile than to be skilled in a special craft.

All of this is just as important from the employer's standpoint and he should co-operate and take the initiative in promoting education along these lines. Society as a whole, as well as the employer and employee, need to have all workers trained in good citizenship, and all that the word implies.

So far we have been speaking of the rank and file of labor. There remains, however, what is sometimes spoken of as the aristocracy of labor, the machinists, repairmen, foremen and superintendents, who may be recruited from the ranks by superimposing education and training for their specialized promotions. There are also those who have acquired their necessary technical training in schools, but who lack the machine contact, which may be given them in the plant, and if the average laborer can acquire the knowledge of his individual job in a short time, surely a capable technical graduate ought not to be confined to the same job for a longer time, so far as gaining the experience is concerned.

The industrial part of the problem therefore consists of two parts, First, Training of the average worker to fill one of the more responsible positions, which consists in the acquisition of more technical knowledge, which cannot be adequately gained in the plant but must be acquired by contact with the technical school.

Second—The fitting of the technically trained man to the various parts of industry, that is, acquiring adequate experience by actual contact in the plant. For many years past, various attempts have been made to accomplish this result, by teaching manual training in public and private schools at an early age, and in trade and industrial schools at an older age. At the time, these schools were thought to be the solution of the problem, but they have persisted with varying fortunes. Many of them have been organized for specific or local objects and have served a very useful purpose in many cases, notably in the education of the Negro and Indian.

The chief drawback to a greater degree of usefulness of all such schools is the lack of that vital energizing contact with actuality. There seems to be no perfect substitute for the thing as it is and as it is to be done, with its metes and bounds and standards which must be reached.

If therefore, the goal of practical training in industry must still be pursued, it would seem that there must be a hearty cooperation between the school and the plant. There must be applied knowledge in fact rather than in name. While the fundamental principles of knowledge may be acquired outside the plant through schools and extension courses and some approach may be attained by laboratory work, the actual application and experience with all its incentives can only be possessed by doing the work in the commercial plant. Therefore, training in industry in this sense involves at the start a full and free discussion, of its need and method of application, with plant executives. Naturally a different attitude will be taken by different individuals, all the way from those who have no interest and see no need of viewing the subject in any new light, to those who will welcome any plan which will give promise of results directly or even indirectly.

Paper is the indespensable vehicle for the dissemination of knowledge and it is but natural that paper manufacturers should take a leading part in promoting education along every useful line. During the last few years this interest has grown to such an extent that the paper industry occupies an enviable position as an industrial educator. The subject is now given a prominent place on the agenda at the meetings of the various branches of the paper and pulp associations, both of the United States and Canada. The Technical Association of the Pulp and Paper Industry has taken up the task afresh of promoting and advancing applied knowledge in the manufacture of paper and to those things which pertain to it.

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Conducted by W.G. MacNAUGHTON, Secretary

Filter Mass*

G. Bonnet, Paper Making Engineer at the Papeteries de Madagascar

Filter mass, also known as filtering pulp, finds its chief outlet in the brewing industry, where it is used to clarify the beer after fermentation. Specially designed filter presses are required for the purpose, the compartments of which are filled with filter mass, and the beer is passed through them under a pressure of about 0.6 kilo (about 8 pounds per square inch).

Before the War the Germans had a virtual monopoly of the manufacture of this article, so that when this source of supply was cut off in August, 1914, the French paper makers were not in a position to make an article measuring up to the very exacting requirements which it had to meet. It was only by dint of hard and sustained efforts that they finally succeeded in turning out a satisfactory product; for though the manufacture of filter mass resembles that of filter paper and of blotting paper to a considerable extent, it must possess certain properties which are exceptionally difficult to obtain, and which may even be contradictory.

Properties of Filter Mass

Physically, the mass must be very white, soft, flexible, elastic, and yet strong. It should filter rapidly; but it must hold back all substances which cause turbidity or cloudiness in the beer, and at the same time it must allow the organisms to which is due the flavor of the beer to pass through. It must be free from all taste or smell.

When mixed with water it should disintegrate quickly and easily, without formation of lumps. The individual fibers must be strong and fairly long; for if they are beaten short they are partly carried off by the filtered beer.

Chemically, filter mass must be inert towards all the substances with which it comes in contact. It must be free from starch, which makes the beer gelatinous and opalescent, and also from the least trace of metallic particles, especially iron (the only metal which can remain in contact with beer without affecting it is tin). The ash and the ether extract should also be as low as possible.

Another very important requirement is that the mass should be aseptic, so as to avoid contaminating the beer which is exceptionally sensitive to the action of micro-organisms.

All these conditions are essential and contribute to make this product exceptionally difficult to manufacture; and the fact that there is a relatively small market for it does not help matters.

As in the case of filter paper and high grade blottings, the only really satisfactory material is cotton. Theoretically, all cotton rags could be used. But in order to obtain a product possessing to the highest possible degree the numerous qualities required, it is best to take new white cuttings of such materials as underwear and light colored calicos. Worn, clean, white rags are also very satisfactory, for the fiber has a high absorbency owing to freedom from resins and incrusting material; and moreover the treatment can be varied to a certain extent without any adverse effects on the qualities of the finished product.

The rag storage should be covered, well ventilated, and, above all, quite dry; for if it is damp the rags can acquire a bad smell, which it is almost impossible to get rid of.

The rags are first of all carefully dusted and sorted, and it is particularly important that all foreign material should be removed, such as bottons, hooks, rubber, and especially everything made of metal.

Cooking

Either soda ash or caustic soda is used for cooking, according to the quality of the rags. The first-mentioned reagent does not impair the fibers, but it can be used only with clean rags. Caustic soda, on the other hand, can be used for all grades of rags, and its more drastic action effects complete removal of the gums, resins and fats and at the same time softens the fiber and facilitates the production of a loose-textured, fast-filtering mass.

Use of a large proportion of water in the boiler also helps to give a highly absorbent fiber, but of course it must be very pure.

Use of a mixture of soda ash and of lime, which comes to the same thing as using caustic soda, cannot be recommended, for calcium carbonate is precipitated on the fibers decreasing the filtering power and increasing the ash content. Lime is used for cooking in mills making high grade blottings and filter paper, but it cannot be used satisfactorily in making filter mass.

A second sorting after boiling goes a long way towards eliminating any remaining impurities.

It has been suggested that the boiled rags be allowed to rot to improve the filtering power and softness and to destroy any starch that might be present. But such a procedure should not be considered for a moment, for, though it certainly attains its object, it imparts an absolutely repulsive odor to the rags which render all subsequent manipulation most disagreeable and which frequently cannot be completely eliminated from the finished materials. There is also a considerable danger that cryptogamic organisms may develop, which might not be completely eliminated in subsequent

*Translated from *Le Papier* xxvii, 1167-1170, October 1924 by A. Papineau-Couture.

operations and would have a disastrous effect on the keeping qualities of the beer as well as of the filter mass itself.

Washing and Defibering

Washing and defibering should be carried out in about an hour to an hour and a half. The stock should be circulated as fast as possible and should be charged light to avoid hydration caused by the rubbing action of the fibers on one another. The fibers should be kept long, so as not to impair their strength. For if there is appreciable hydration the filtering power will be reduced considerably, while if the fibers are shortened some of them will be carried away by the filtered beer. About one per cent of caustic soda can be added to make the stock softer.

Evidentaly, fillers are out of the question.

Generally, a tile-lined beater with bronze roll and bedplate is used to prevent contamination by metallic particles. The fly bars and the knives of the bedplate are preferably set at a slight angle to one another. The fly bars should be thin and sharp, and spaced regularly around the roll at intervals of about 80 millimeters (about 3 inches) from one another.

An exceptionally soft product, free from all traces of starch, can be obtained by adding a little malt daistase a short time before the defibering is finished. The pulp is then allowed to stand a little while to allow the daistase to transform the starch into soluble sugars, which are easily eliminated by washing. There are several brands of commercial daistase which rapidly invert the starch.

Bleaching

The material must generally be bleached, as a snow-white color is demanded. This is effected by treating cold with bleaching powder solution, no acid being added so as to prevent precipitation of lime salts on the fibers. For the same reason the bleach liquor must be very carefully screened.

In order to retain the softness and flexibility of the stock, it is desirable to use as little bleach as possible, and the whole process leading up to the bleaching should be conducted with a view to keeping the bleach consumption below 5 per cent.

Use of chlorine gas, easily obtained from liquid chlorine in cylinders, has been suggested; but though this may appear as the ideal method from theoretical considerations, the practical application is very complicated.

In the case of clean rags it is worth while considering the possibility of bleaching with potassium permanganate, which has the twofold advantage of not injuring the fiber and of giving a beautiful pearly white with a low consumption of bleaching agent.

In any case, a thorough washing is necessary after bleaching to remove all traces of the bleach and of the products formed during bleaching. A 60-mesh wire on the washing drum is very satisfactory, for any small fibers which could be carried away by the filtrate when the filter mass is subsequently used can pass through the wire.

Making Into Sheets and Drying

The pulp is then passed through a sand trap and over a magnetic extractor to remove iron particles, and from there passes to the drying machine, a cylinder machine being used in preference to a fourdrinier, as the former gives a softer and more open sheet.

In certain mills the stock is poured into molds, and the excess water is removed by pressing that "cakes" in a hydraulic press. The pressure should be adjusted so as to avoid excessive compression of the fibers and so as to give a mass which disintegrates readily in water.

Drying by means of the usual drier rolls is out of the question, because such a procedure causes the fibers to contract and greatly diminishes the filtering power. Air-drying should be used. Natural atmospheric drying is fairly satisfactory, but has a tendency to impart a laundry smell to the product. Drying by means of hot air is free from this drawback.

Some mills in northern countries increase the absorbency and filtering power by storing the pulp wet during the summer and then allowing it to freeze during the winter. The ice crystals burst open the fibers, and the pulp acquires a loose, open texture, which facilitates filtration, while its strength is not seriously impaired. This procedure is even claimed to destroy the starch. It should be noted that the results obtained by allowing the previously dried pulp to freeze are not as good.

The sheets or cakes of finished filter mass should be packed with exceptional care to prevent them from being soiled or contaminated in any way, and should be stored in a dry, well ventilated place.

Testing of Filter Mass

The *filtering power* is measured by means of a small experimental filter press. It should be as high as possible, consistent with complete clarification of the beer, and without affecting the flavor in any way.

Ash is determined by incinerating a weighted sample to a white ash in a tared crucible, and should not be higher than 0.7 per cent.

Fat and ether extract is obtained by weighing a sample before and after extraction in a Soxhlet apparatus. It should not be higher than 0.2 per cent.

Moisture, which should be about 10 to 12 per cent, is determined in the usual manner by drying for six hours at 100°C.

Composition.—A good filter mass should consist exclusively of cotton fibers. Presence of other fibers is detected by a microscopical examination. With a certain amount of practice the degree of hydration of the fibers can be judged with a fair degree of accuracy under the microscope.

Starch is readily detected by the blue color which it gives on adding an aqueous solution of iodine and potassium iodide.

It is essential that filter mass should not contain the least trace or iron. It is detected by boiling the sample with distilled water in the presence of a little nitric acid to convert any iron present into the ferric state. The filtered solution is then treated with potassium thiocyanate, which gives a red color with ferric iron. A blank should be run on the reagents, as the nitric acid sometimes contains traces of iron.

Filter mass itself should be free from smell, and it should not impart any to liquids with which it can come in contact. Two samples are allowed to macerate for twenty-four hours in alcohol and in beer, respectively; and the liquids are then examined to judge if the flavor and odor have been affected. By carrying out the test in sterilized, closed vessels, and allowing it to run for a longer time, some idea can be obtained of the development of microorganisms.

Conclusion

A mill for the production of filter mass should preferably be situated in a cold country and have at its disposal an abundant supply of clean water. The water consumption is very high, averaging about 2,000 liters per kilo of finished product, and the quality should be of the best, iron being completely absent and the total solids not exceeding 5 grams per liter.

A problem which would be worth while investigating is the possibility of finding a wider market for the product, for the consumption at the present time is small and there does not seem to be much likelihood of a shortage. It is true that brewing is a relatively unimportant industry in France; but even large breweries do not need to make large purchases, as the material lasts a long time and the losses are very small. We know of very large breweries which use only about 200 to 250 kilos in one season.

We do not claim to have exhausted the subject, by any means; and much could have been said of the various grades of long-, medium- and short-fibered filter masses, and of the special types used for filtering oils, syrups, wines and other liquids of similar nature, as well as of a special grade which is being introduced as a substitute for filter char for clarifying sugar solutions in sugar refineries.

A Modified Method for the Determination of the Copper Number (Oxycellulose) of Bleached Pulps

By Paul D. Bray and Pao Chen Liu.*

The increasing use of bleached sulphite wood pulp as a raw product in industries other than paper manufacture, especially in the artificial silk industry, has made necessary more careful control of the process of its manufacture. The artificial silk industry demands a bleached sulphite pulp of a lower oxycellulose and a higher pure (*alpha*) cellulose content than does the paper trade. The formation of oxycellulose or "over-bleaching" is measured by its "copper number" and its formation is not desired.

The Schwalbe method for the determination of the copper number of cellulose has been widely applied in the pulp and the artificial silk industries. Usually this method gives results that are not always checkable. The purpose of this work was to study the Schwalbe method for the determination of the copper number of a wood pulp, and to so modilfy the method that it would give more satisfactory results.

The amount of oxycellulose in pulp, estimated by Schwalbe's method, is expressed in grams of copper reduced from Fehling's solution, under certain conditions, per hundred grams of bone dry cellulose (pulp) taken from a sample. This value is commonly known as its "copper number." During the determination of the copper number the cellulose fibers absorb a certain amount of the copper salt from the Fehling's and this should be taken into consideration. Schwalbe calls the amount of copper absorbed by 100 grams of cellulose the "hydrate number." It is obvious then that a "corrected copper number" is the difference between the

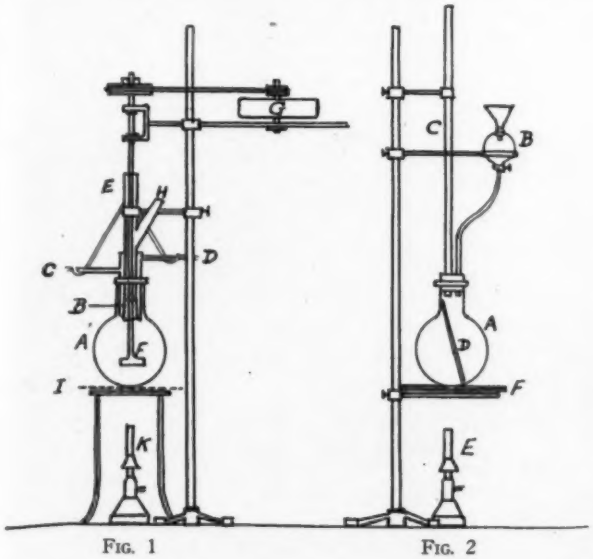

Fig. 1

Fig. 2

copper number and the hydrate number. Schwalbe and other investigators believe that pure cellulose has no reducing power because pure cotton cellulose has practically no reducing power. Over-bleaching is characterized by an increase of reducing power from Fehling's solution due to the formation of compounds such as oxycellulose or hydrocellulose which are objectionable to the manufacture of artificial silk. It is, therefore, possible for both the pulp and the artificial silk manufacturers to control their manufacturing processes by determining the reducing power or copper number of the bleached pulp. However, without an accurate method for the determination of the copper number, the results obtained are not dependable and manufacturing control is not attainable.

Schwalbe's original apparatus, Fig. 1, for the copper number determination has a round bottom flask *A*, condenser *B*, motor driven glass stirrer *F*. On side of glass tube *E*, there is provision made for introducing Fehling's solution at *H*. The flask *A* rests on a wire gauze *I*, and is heated by burner *K*. The filtration and washing are done on filter paper with infusorial earth.

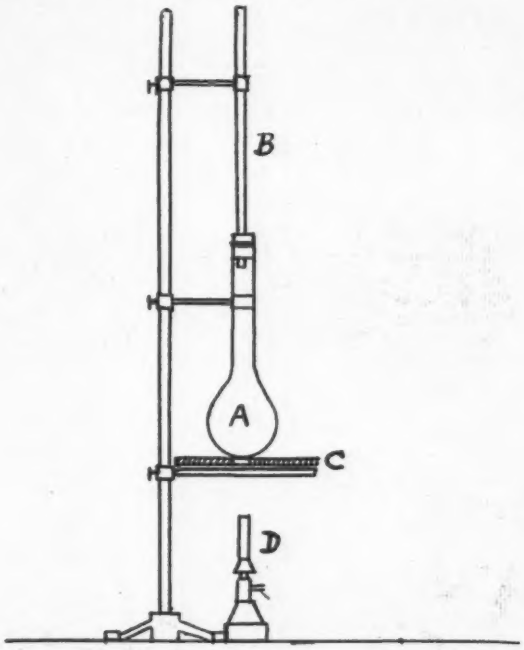

Fig. 3

The common form of the above apparatus usually employed is shown by Fig. 2. Round bottom flask *A* with an ebullition tube *D* (open at one end). Flask *A* is connected with an air condenser *C* and rests on asbestos plate *F*, which has a hole in the center. Hot Fehling's solution is added through separatory funnel *B*. The filtration is done by suction through a Gooch crucible with asbestos or glass wool.

The proposed or modified apparatus, Fig. 3, consists of a 250 cc. round bottom Kjeldahl flask *A*, which is connected with air condenser *B* and rests on an asbestos board *C* which has an inch diameter hole at the middle. Filtration is performed by suction through a Gooch crucible with a specially purified asbestos and glass wool mat.

The advantages of the last described apparatus are as follows:

1—It is much more simple than the original or the common laboratory form.

2—It gives just as good condensation and circulation (when ⅛ inch square sheet pulp is used) as the original apparatus and much better than the regular laboratory apparatus.

3—The operation is much easier and quicker than with the other two types of apparatus.

4—The prevention of overheating is just as good as with the

*Data taken from a thesis presented by P. C. Liu, in partial requirement for the Degree of Master of Science, University of Maine, Orono, Me.

laboratory design while the original (Fig. 1) apparatus has no provision for this effect. The prevention of loss of fiber and cuprous oxide is as good as the original apparatus and better than with the laboratory apparatus (Fig 2).

Bleached sulphite pulp of artificial silk grade of local manufacture was used in this work and a n/10 solution of c.p. sodium thiosulphate as well as the regular Fehling's solution, parts (solutions) A and B of which were mixed just before each determination.

A number of determinations, according to the directions for Schwalbe's method as given in *Manufacture of Pulp and Paper*, Vol. 3, Sect. 8, pp. 43, 44, were performed and the copper determined both electrolytically and volumetrically. The results obtained varied from 1.07 to 5.16 on the pulp used.

From these experiments, it was found that both methods of determination of the copper (volumetric and electrolytic) (Tables 1 and 2) did not give correct results. Theoretically, there is no source of error in the titration or the electrolysis method when the experiment is performed carefully, following closely the given directions. Hence the sources of error are considered to be in the preparation of the cuprous oxide as indicated in the first part of the Schwalbe's method.

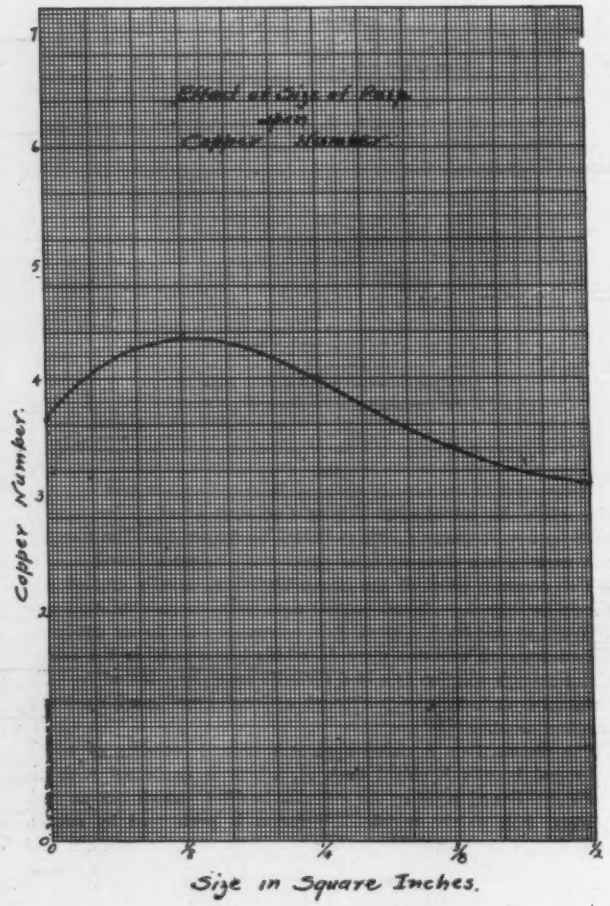

FIG. 4

After studying the first part of the method carefully, the following factors are considered to be important for this investigation: (a) apparatus, (b) operation, (c) size of pulp, (d) decomposition of Fehling's solution, and (e) duration of heating.

(a) APPARATUS. The laboratory apparatus is not ideal for this determination. During boiling, the finely ground pulp usually gets into the tube *D*. Hence the fibers inside of this tube have no reducing effect with the Fehling's solution. It is also hard to get these fibers out for washing and treatment with nitric acid. For filtering and washing a specially prepared Gooch crucible should be used to prevent the loss of cuprous oxide and fiber. Hence, for this investigation, the proposed apparatus was used. (Fig. 3).

(b) OPERATION. After the pulp has been boiled for 15 minutes with the Fehling's solution, we should decant the solution and wash the pulp immediately without allowing it to stand and wait for the stock to settle as directed in the Schwalbe's method. It was noticed that after the burner has been removed the solution keeps on boiling for a minute or two. Hence the time of boiling is not accurate. Furthermore, the longer the pulp is allowed to stand with the Fehling's solution the more the copper salt would be absorbed by the cellulose. Hence the result obtained will be too

SUMMARY OF DATA

TABLE 1

(a) Apparatus and (b) Operation Using Schwalbe's Method with the Pulp. By Volumetric Method

No.	Sample in g.	Moisture %	Sodium thiosulphate (N = 0.09804) cc.	Copper number
1	3.0000	6.54	10.85	2.41
2	3.0050	6.28	11.70	2.59
3	3.0052	6.54	12.90	2.87
4	3.0000	6.00	12.70	2.82
5	2.0007	6.00	9.40	3.12
6	2.0001	6.00	9.00	2.99

TABLE 2

By Electrolytic Method

No.	Sample in g.	Moisture %	Grams copper	Copper No.
1	3.0000	6.00	.0305	1.79
2	3.0016	6.00	.0395	1.40
3	2.0004	6.00	.0357	2.96
4	2.0032	6.00	.0525	2.76
5	2.0006	5.24	.0515	2.72
6	2.0012	5.24	.0590	3.11
7	2.0016	5.24	.0575	3.04

high. In washing and dissolving the cuprous oxide on the cellulose pulp it is better to keep as much fiber as possible in the beaker and to do the washing and dissolving with constant stirring in the beaker. Hence fibers in the Gooch crucible will be in only a small amount and thus the washing and dissolving will be more easily, thoroughly and quickly performed. After decantation hot water should be used for the washing, instead of cold, so that the removal of the Fehling's solution can be done more easily and quickly.

In treating the pulp with the Fehling's solution it is more convenient to add cold Fehling's solution than hot. Experiments have been performed by this improved operation and using the proposed apparatus. The result of the copper numbers obtained are indicated as follows:

Experiment	Fehling's solution Cold	Fehling's solution Hot
1	3.84	3.22
2	3.84	3.00
Average	3.84	3.11

NOTE.—Since cold solution is much easier to work with and gives concordant results, the use of cold Fehling's solution is recommended.

TABLE 3

COMPARISON OF RESULTS BETWEEN USING HOT AND COLD FEHLING'S SOLUTION

(a) Hot Fehling's Solution

No.	Sample in g.	Moisture %	Thiosulphate N = .09804 cc.	Copper No.
1.	2.0012	4.53	9.9	3.22
2.	2.0014	4.53	9.5	3.14

(b) Cold Fehling's Solution

No.	Sample in g.	Moisture %	Thiosulphate N = .09804 cc.	Copper No.
1.	2.0004	4.53	11.8	3.84
2.	2.0024	4.53	11.8	3.84

(c) SIZE OF PULP. There are many disadvantages in using finely ground pulp for this experiment. It takes a long time to grind the pulp and considerable care is needed in preventing any loss of fiber. During boiling, a tube having a lower end open must be

inserted to take care of the bumping effect of the solution and the fine fiber occasionally enters this tube through the open end and cannot be removed as mentioned above. However, bumping frequently happens causing numerous fibers to be deposited on the upper portion of the flask and on the inside of the condenser. Therefore these fibers have no contact with the Fehling's solution and the result will be lowered. Besides these, the solution is mixed with a thick suspension which gives poor agitation and poor circulation. Moreover, the beginning of the boiling point is not clearly shown. Hence the exact time for boiling is hard to determine. During decanting and washing, which should be done as quickly as possible so as to prevent the further reaction on the cellulose, the finely ground fiber renders many difficulties. In short, it is a tedious material to work, because it takes considerable time to have thorough washing and a complete filtration.

A series of experiments was carried out by using the proposed apparatus (Fig. 3) and the improved operation for the determination of the proper size. The different sizes of this material tested were as follows: (1) finely ground, (2) ⅛ square inch, (3) ¼ square inch, (4) ⅜ square inch, and (5) ½ square inch. A curve (Fig. 4) of the results has been drawn and shows that under the same treatment and the same condition, the maximum result is given by the ⅛ square inch size of pulp. Its copper number was 4.39

TABLE 4

(c) Size of Pulp

Experiment	Size of Pulp in sq. in.	Sample in g.	Moisture %	Sodium thiosulphate cc.	Copper No.	Average Copper No.
1	Finely ground	2.0000	5.63	13.1	3.86	
2	Finely ground	2.0004	3.63	11.7	3.46	3.66
1	⅛	2.0002	5.70	14.7	4.34	
2	⅛	2.0026	5.70	14.7	4.44	4.39
1	¼	2.0004	5.63	13.8	4.06	
2	¼	2.0030	5.63	13.8	4.07	4.065
1	⅜	2.0044	5.11	11.5	3.37	
2	⅜	2.0040	5.11	11.9	3.49	3.43
1	½	2.044	4.92	10.7	3.07	
2	½	2.034	4.92	11.1	3.20	3.13

Normality of sodium thiosulphate = .08765.

It was found that there are many advantages in using the ⅛ square inch size of pulp. They are as follows: (1) It gives the highest copper value of the various sizes tested. (2) It gives good agitation and circulation during boiling. (3) There is no bumping effect, as is the case in using finely divided pulp. (4) The beginning of the boiling point is readily and easily seen. Thus the time of boiling can be measured accurately. (5) The penetration of the Fehling's solution is just as good as the finely ground pulp and is better than the other sizes. (6) Decanting and washing are easy of operation and quickly completed. (7) The loss of fiber is almost entirely eliminated which means no loss of cuprous oxide.

(d) Decomposition of Fehling's Solution. In the size of sample determination, the copper number, obtained for the ⅛ square inch size pulp, was 4.39. For the investigation of the sources of this high result, the decomposition of the Fehling's solution is therefore determined and the procedure is as follows: Of solution A, 25 cc. was mixed with 25 cc. of solution B and this mixture was added to 50 cc. distilled water. The procedure was the same as the above experiments except without any pulp. When the solution was filtered through a prepared Gooch crucible, fine red particles of cuprous oxide was obtained. This was due to the reduction of Fehling's solution.

Experiments have been performed by heating the Fehling's solution under the following conditions: (1) Just up to boiling, (2) boil for 5 minutes, (3) for 10 minutes, (4) for 15 minutes, (5) for 20 minutes, (6) for 30 minutes, and (7) for one hour. By titration with sodium thiosulphate it was found (Fig. 5, Curve 2) that the reduction of the Fehling's solution increases as the duration of boiling increases. In other words, the decomposition or reduction of the Fehling's solution is directly proportional to the time of boiling.

From this study, we can readily see that the copper number obtained from the ⅛ square inch pulp sample should be corrected by the deduction of the 15 minutes decomposition of Fehling's solution. It was found that the number of cc. of n/10 sodium thiosulphate used for the titration of ⅛ square inch pulp is 14.7 cc. and that for the titration of the 15 minutes decomposition of Fehling's solution is 2.4 cc. (Table 5). Therefore the actual

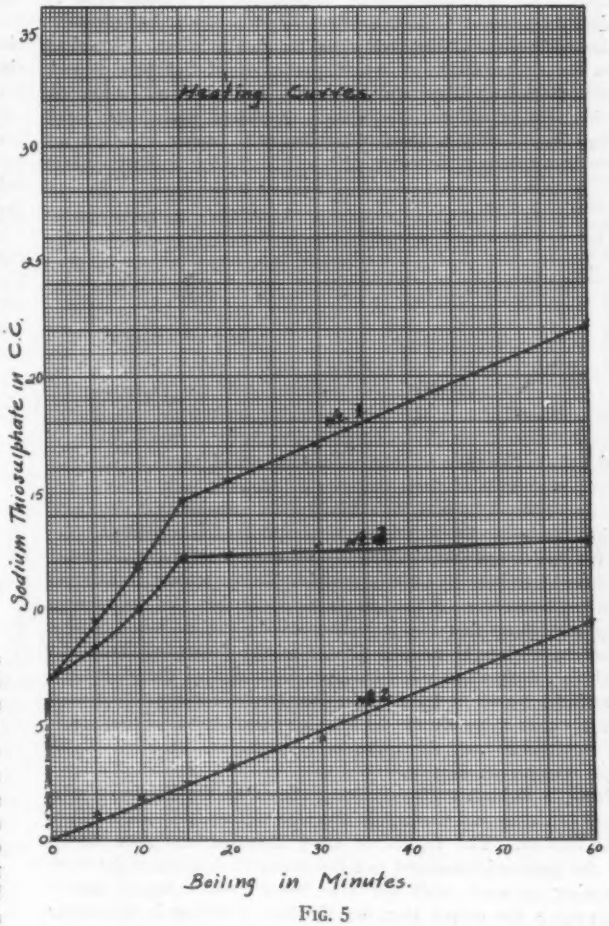

Fig. 5

measurement of the reducing power of the oxycellulose is 12.3 cc. and the calculated copper number is 3.63 which should be the right result.

TABLE 5

(d) Decomposition of Fehling's Solution

Duration of heating min.	Thiosulphate used on experiment cc. 1	cc. 2	Average sodium thiosulphate used cc.
Up to boiling	0	0	0
5	1.0	1.2	1.1
10	2.0	1.7	1.8
15	2.4	2.4	2.4
20	3.1	3.3	3.2
30	4.2	4.4	4.3
60	9.4	9.3	9.4

(e) Duration of Heating. From the previous studies we know that the proper size is ⅛ square inch and a deduction of the decomposition of the Fehling's solution is necessary. However, we still do not know the proper length of time for boiling. Hence the determination of the duration of boiling is required and the procedure is carried out in the following manner:

Using the proposed apparatus and the improved method, the ⅛

square inch size of pulp with a deduction of the decomposition of Fehling's solution, proceed as in the previous determination except heating the solution according to the following conditions: (1) Just up to boiling, (2) boil for 5 minutes, (3) for 10 minutes, (4) for 15 minutes, (5) for 20 minutes, (6) for 30 minutes, and (7) for 1 hour. It is found, (Table 6) that the number of cc. sodium thiosulphate solution used for titration increase with the time of boiling. When the number of cc. thiosulphate are plotted (Fig. 5) against the duration of heating, curve No. 1 is obtained as shown on the heating curves. On the same sheet the number of cc. thiosulphate from the determination of the decomposition of Fehling's solution is also plotted as above and curve No. 2 is obtained. After deduction, the actual cc. thiosulphate is plotted again and obtain curve No. 3. From these determinations, copper numbers are

TABLE 6
(e) Duration of Heating Pulp

Duration of heating in min. before boiling	Sample in g. on experiment No. 1	Sample in g. on experiment No. 2	cc. sodium thio. 1	cc. sodium thio. 2	Average cc. thio.	Actual cc. thio. used	Copper No. as determined	Cu. No. after Deduction
	2.0000	2.0000	6.9	6.9	6.90	6.90	2.04	2.04
5	2.0002	2.0003	9.4	9.5	9.45	8.35	2.79	2.47
10	2.0016	2.0000	11.8	11.6	11.70	9.90	3.45	2.92
15	2.0006	2.0002	14.6	14.6	14.60	12.20	4.30	3.60
20	2.0006	2.0000	15.5	15.5	15.50	12.30	4.57	3.63
30	2.0010	2.0006	17.0	17.0	17.00	12.70	5.01	3.74
60	2.0003	2.0010	22.2	22.3	22.25	12.85	6.56	3.79

Per cent moisture—5.5%.

calculated and plotted, the copper number both with and without deduction against the duration of heating curve A and B, (Fig. 6) on the effect of copper number on heating, are obtained.

From the study of these curves the following facts are evident: (1) Curve No. 2 (Fig. 5) is a straight line showing that the longer boiling the more the decomposition of the Fehling's solution. (2) Curves No. 1 and No. 3 (Fig. 5) show that the reducing power of the oxycellulose is entirely completed after having 15 minutes' boiling. Therefore 15 minutes is sufficient for this experiment. They also show that the increasing of the copper number when boiled more than 15 minutes is due to the decomposition of the Fehling's solution and when having a deduction of the decomposition of the Fehling's solution the result of the copper number is almost constant as shown by the horizontal part of the curve No. 3 (Fig. 5) and the curve B (Fig. 6) of the effect of the copper number on heating.

Hence, a deduction of the decomposition of the Fehling's solution is necessary and the proper time for boiling is 15 minutes.

E. Result. The results of these investigations have shown that the proposed apparatus and the improved operations are more convenient to work with and give better results, the ⅛ square inch pulp is the proper size, the 15 minutes boiling is the proper time and a deduction of the decomposition of Fehling's solution is necessary.

Summary of Results

A. Sources of Errors. The main sources of errors, in the Schwalbe's method, appear to be as follows:

(a) The loss of cuprous oxide due to the apparatus and operation, such as: The filtering without asbestos on Gooch crucible; the fiber entering the inserted boiling tube; the deposition of the pulp on the upper portion of the flask and the inside of the air condenser; the incomplete dissolving of the cuprous oxide with nitric acid; the insufficient quantity of Fehling's solution, used for the high copper number pulps which usually gives a tinted green coloration to the filtrate from the copper coated pulp; and, both the overheating of the pulp and the exposing of the cuprous oxide to the air, causing the cuprous oxide to become cupric oxide which is hydroscopic and may also be slightly soluble in hot water.

(b) The increase of cuprous oxide is due to improper operations such as: to allow the pulp and the Fehling's solution after 15 minutes' boiling to stand without immediate decanting and washing; to use cold water for washing instead of hot water resulting in incomplete removal of Fehling's solution; to allow the cuprous oxide solution after dissolving with nitric acid, running into the unwashed suction flask which contains Fehling's solution; to calculate the copper number without the deduction of the decomposition of Fehling's solution; and to heat the Fehling's solution and the pulp with a strong burner causing the changing of the concentration of the solution and a larger decomposition of the Fehling's solution.

(c) The increase or decrease of cuprous oxide due to the improper size of pulp employed and the inaccuracy of duration of boiling.

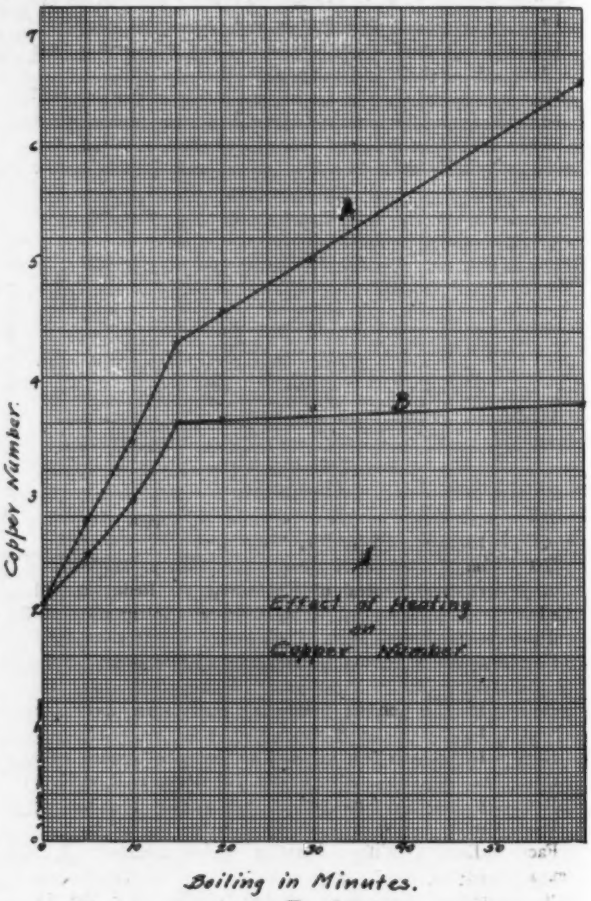

Fig. 6

The Modified or Proposed Method

After finding these sources of errors, an alternative method was devised. The directions are as follows:

(a) Moisture. A 6 gram sample is cut into exactly ½-inch squares. Mix and weigh out 3 samples of about 2 grams each. Use one of them for the moisture determination and the other two for copper number.

(b) Copper Number. The sample is placed in a round bottom Kjeldahl digestion flask (see Fig. 3). Add 50 cc. of cold freshly prepared Fehling's solution which is made by mixing 25 cc. solution A with 25 cc. solution B and then add 50 cc. distilled water. (If the Fehling's solution is not sufficient, 60 cc. should be added instead of 50 cc.) Put the flask on an asbestos board which has a 1 inch diameter hole in the middle. The flask is then connected to an air condenser and heated with a small flame. Boil for exactly 15 minutes. The time must be taken at the very instant when the liquid begins to boil and the liquid should always show

numerous steam bubbles. Remove the burner and decant the solution immediately into a 1000 cc. beaker. Transfer the pulp into a 450 cc. beaker and wash it quickly with boiling distilled water for several times until free from copper sulphate and alkali. Filter the Fehling's solution and the washings through glass wool and asbestos on the Gooch crucible by light suction and reject the filtrate. Never let the pulp on the filter dry while washing and do not allow the cuprous oxide to stand without covering with warm water in the beaker while the Fehling's solution and the washings are being filtered. Wash the suction flask with hot water and dissolve the reduced copper about three times with 25 cc. portions of 1 to 1 hot nitric acid with constant stirring. Disconnect the suction flask and pour the solution on the Gooch crucible to dissolve the cuprous oxide in it. Filter the solution with light suction and wash well with boiling water. Wash with 1 to 1 hot ammonium hydroxide. The absence of blue color indicates that all copper is washed out. Repeat the dissolving and washing until the cuprous oxide is all removed, of necessary. This extract is then evaporated to dryness. Dissolve it with 30 cc. 1 to 1 hot nitric acid. Warm if necessary, Add 25 cc. distilled water and make slightly alkaline with ammonium hydroxide. Add 7 cc. glacial acetic acid, 30 cc. 10 per cent potassium iodide solution and titrate the iodine set free with a standard sodium thiosulphate solution using starch as an indicator.

Run a blank of the Fehling's solution alone (without pulp) the same procedure and calculate the copper number in the following manner:

1 cc. N thio. = 0.06357 gram copper. cc. thio. for pulp minus cc. thio. for the Fehling's solution equal actual cc. thio. used.
N = normality of this solution.

$$\text{Copper No.} = \frac{\text{(actual cc. thio.) (N) (0.06357) (100)}}{\text{wt. of pulp}} \times \frac{100}{\text{100\% moisture}}$$

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13. Cellulose and Sulphite Pulp. Paper Trade J., Vol. 73, p. 44 (Sept. 8, 1921).
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Gardner-Harvey Buy Taylor Stokers

MIDDLETOWN, Ohio, May 25, 1925.—The Gardner-Harvey Paper Company, has purchased from the American Engineering Company, of Philadelphia, three 5-retort, 17-tuyere Taylor stokers for installation in their No. 1 Mill. These stokers are in addition to a number of other Taylor stokers already installed.

Summer Courses in Pulp and Paper Making

The University of Maine, Orono, Me., announces that as during many previous years it will conduct a number of courses in chemistry and pulp and paper manufacture from June 25 to August 7, 1925. The courses in paper include the following:

PAPER TECHNOLOGY.

A lecture course on pulp manufacturing processes including equipment used, raw materials, flow of materials, etc.

PULP MANUFACTURE.

Soda Process. Inspection and sorting of chips, preparation and analysis of caustic liquor, cooking charge calculations, cooking operation and controls, screening the pulp, determination of yield, bleach requirements, strength testing.

Sulphite Process. Preparation of acid by tank system and its analysis, the cooking operation and controls, determination of relief and sulphur recovery, stock washing and screening, bleach requirements, determination of yield, calculations of sulphur and lime consumption, strength testing.

Sulphate Process. Testing of liquors, yields, steam consumption, consumption of chemicals, etc.

Mechanical Process. Lectures with mill demonstrations.

PULP BLEACHING.

Determination of bleach required for standard color, fiber loss on bleaching, determination of rate of bleaching under varying conditions, the effect of stock concentration and temperature, determination of oxycellulose.

PAPER MANUFACTURING.

Laboratory work. Beating, sizing, loading, coloring, slowness test, treatment of water, raw materials, examination of papermakers' supplies.

PAPER TESTING AND ANALYSIS.

All of the important methods of the Technical Association of the Pulp and Paper Industry, together with some other valuable domestic and foreign methods will be considered.

The courses in pulp and paper during the summer are designed to meet the specific needs of students who desire and are qualified to take pulp and paper courses. Pulp and paper mill men, with or without technical training, who have had practical experience and desire to gain a scientific understanding of the important phases of pulp and paper manufacture and testing or phases of work with which they are unfamiliar.

Visits to Pulp and Paper Mills

The summer work is in charge of Dr. Charles Andrew Brautlecht, professor of chemistry, and the pulp and paper courses will be given by Paul DeCosta Bray, associate professor of chemistry in charge of pulp and paper work, who was for eight years chemist and assistant superintendent of the Katahdin Pulp & Paper Company and Eastern Manufacturing Company. He will be assisted by Alexander Braun Cutler, assistant instructor in paper chemistry and paper technology. In addition, if there is sufficient demand, other paper specialists will be obtained to give lectures on specific pulp and paper topics. Visits to all kinds of pulp and paper mills in the vicinity of Orono will be made on Saturdays. These will include groundwood, soda, bleached and unbleached sulphite and kraft pulp mills, as well as newsprint, specialty, fine writing and kraft paper mills.

Those interested in taking these courses should write at once to make reservations, to Prof. C. A. Brautlecht, Chemistry Department, University of Maine, Orono, Me.

Pulpwood Season Opens at Ogdensburg

The first pulp boat of the season arrived at Ogdensburg, N. Y., on May 6, and with the early start given to the local industry it is believed that the 1925 season will be an exceptionally active one at this pulp terminal. It is estimated that close to 75,000 cords of wood will be received at Ogdensburg, and approximately 20,000 cords at the neighboring Algonquin docks.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Paper Making Industry

Clarence J. West, Chairman

Power

Economical Paper Production Possible With Proper Use of Exhaust Steam. James T. Beard, 2nd. *Paper Ind.* 6, 857-860 (Aug. 1924). A discussion of what happens when exhaust steam is improperly used for heating the drier rolls, with suggestions for using this steam most efficiently and with greatest economy.—A. P.-C.

Steam Distribution, Pumping Extravagance and Practical Suggestions for Improvement. F. C. Farnsworth. *Paper Trade J.* 79, No. 4, 43-47 (July 24, 1924). A discussion of the problem of obtaining proper steam circulation and air and water removal from paper machine driers, showing how this is accomplished in the Farnsworth system.—A. P.-C.

Heat Economy in the Pulp Industry. H. Frenkenbach. *Wochbl. Papierfabr.* 55, 1676-1678 (July 5, 1924). The concluding article of an address on heat economy in the pulp industry.—J. L. P.

Energy Relations and the Power for Paper Machine Rolls. Wilhelm Stiel. *Wochbl. Papierfabr.* 55, 54-67 (June 14, 1924). The energy relations and power consumption in connection with the paper machine is comprehensively reviewed. Several diagrams are shown.—J. L. P.

Present Practice in Exhaust Steam Technique and Economy in Germany. Heinrich Treitel. *Papierfabr.* 22, 397-401 (Aug. 31, 1924). An address in which the present practice of waste or exhaust steam utilization in Germany is discussed.—J. L. P.

Combustion Control With Wood as a Fuel. Rudolf Sieber. *Zellstoff U. Papier* 4, 147-149 (July 1924). Formulas and tables are given for the calculation of heat losses incident to the use of wood as a fuel instead of coal.—J. L. P.

Heat Economy in the Pulp Industry. R. Dieckmann. *Wochbl. Papierfabr.* 55, 1882-1883 (July 26, 1924). Controversial with H. Frankenbach, same journal, pages 1414-1418 (June 7) and 1676-1678 (July 5).—J. L. P.

Principle of Steam Accumulators. *Paper* 34, 805 (Aug. 21, 1924). Brief description of the Ruths' accumulator and of its merits.—A. P.-C.

Working of Ruths' Steam Accumulator. Max Kreyssig. *Paper* 34, 662-664 (July 31, 1924). A description of an installation of the Ruths' steam accumulator in the Lessebo sulphite and paper mills, Lessebo, Sweden, giving the results obtained since it was first put into operation in 1921.—A. P.-C.

New Belt Drive. William F. Schaphorst. *Paper Trade J.* 79, No. 6, 51-53 (Aug. 7, 1924). A description of the Pulmax drive, with an enumeration of 66 of its merits.—A. P.-C.

Ruths' Steam Accumulator. *Paper* 34, 1138-1142 (Oct. 9, 1924). A discussion of the principle of the Ruths' accumulator and of its performance and advantages, with a description of the apparatus.—A. P.-C.

Pulverized Fuel for the Paper Mill. C. C. Hockley. *Paper Ind.* 6, 1236-1237 (Oct. 1924). A description of the boiler house of the Thilmany Pulp & Paper Co., Kaukauna, Wis., describing more particularly the coal pulverizing and burning system.—A. P.-C.

Mechanical Processes

Pressure Regulating Machine for Wood Grinding Machines. F. A. Peschl assignor to International Paper Co. U. S. pat. 1,497,870, June 17, 1924. Grinders driven from a common source of power will have speeds proportional to their respective diameters, which in turn depend on the extent to which the stones have been worn down. If the several stones have been worn unequally, they will have different peripheral speeds, and if the pressure in the pockets of all the grinders is the same the pulp produced by the grinders will not be uniform. In order to obtain good results the pressure must be reduced according to the wear of the stone. The pressure-water line for each grinder is provided with a suitable reducing or throttle valve, which is controlled by the reduced pressure in that line. And the valves are interconnected in such a manner that the leverage on the stems of the various valves can be set at any required ratio according to the diameters of the stones, thereby varying the pressures in the same ratio.—A. P.-C.

Machine for Grinding Wood Into Pulp. P. Priem assignor to American Voith Contact Co.. U. S. pat. 1,499,547, July 1, 1924. The essential characteristic of the patent is the construction of the magazine of the so called "caterpillar" type of grinder so that the feed pocket usually provided below the magazine proper can be eliminated; the whole magazine is adjustable towards the stone to compensate for the wear, and can be raised clear of the stone to allow of changing the latter. Girders are attached to each side wall of the magazine at a convenient height, and are supported on a suitable base by means of nuts engaging threaded spindles fixed to the base. Each spindle is provided with a worm wheel meshing with a corresponding worm, and the latter are mounted in pairs on shafts. One of the shafts can be driven, either by hand or power, and drives the second shaft by means of sprocket wheels and chain.—A. P.-C.

Magazine Grinder. J. J. Warren. U. S. pat. 1,505,757, Aug. 19, 1924. Continuous positive feed is obtained by means of endless, motor-driven chains passing down the inner face of the magazine. They are provided with spurs which dig into the wood and slowly press it as a continuous compact column against the stone. The current of the motor driving the feed chains is controlled through the motor driving the stone in such a manner that an increase in the load on the motor slows down the feed chains, and vice versa. This keeps the load on the grinder motor practically constant, which makes for maximum efficiency and uniformity in the quality of the pulp. Provision is made for adjusting the vertical position of the magazine and lowering it as the stone wears down, so as to prevent pieces of unground wood from passing between the stone and the bottom of the magazine.—A. P.-C.

Beating

Beating as it Affects the Strength, Expansion and Opacity of Paper. F. Jenkins. *Proc. Tech. Sec. Papermakers' Assoc. Gt. Britain & Irland* 5, 50-62 (1924). The theory is advanced that hydration of pulp is brought about by the explusion of air from the central canals of the fibers. A wet stock produces a paper which alters in size considerably with varying conditions of atmospheric humidity. Opacity may be increased to a maximum by beating sufficiently to prevent "fluff" in the finished paper but not enough to produce "hydration" of the pulp.—C. J. W.

Beating Engine. R. J. Marx. U. S. pat. 1,492,693, May 6, 1924. The invention consists essentially in providing certain accessory parts to facilitate the working of the Rabus beater. The channel at its upper end terminates in a cowl-like element or deflector having practically the shape of a hollow truncated cone closed at its upper end and open at the larger end and also at the side, which is parallel to the axis of the roll. In other words, the upper part of the trough is covered over and the cover part forms the cowl-like element. Near the bottom is provided a doctor to remove any stock which might adhere to the roll, and it is so placed as to direct the stock so removed toward the bottom of the cowl.

Under the doctor there is a perforated water pipe to supply water to the bottom of the deflector, thereby facilitating or "lubricating" the flow of the stock.—A. P.-C.

New Method for Rapid Determination of Beating. P. M. Hoffmann Jacobsen. *Svensk Pap.—Tid.* No. 22, Nov. 30, 1923. Having considered the older tests handle and feel, and among newer ones, freeness, the author proceeds to make a mathematical demonstration of the value of the Schopper-Riegler, Klemm, Schubert, A. B. Green, Skark, and Clayton Beadle tests. A special method of determining the degree of beating is described, it being the ratio between "density and angle of the knives." The influence of loading materials, clay, and the relation of the knives to the characters of the paper are also considered.—P. B.

Sizing

Significance of Free Rosin in Preparation of Rosin Size for Sizing of Paper. E. Pyhala, *Suomen Paperi-Ja Puutavar.* No. 11, June 15, 1924. Dilute solutions (suspensions) of rosin size in which there is a sufficiently strong excess of free rosin, may be prepared with little or no hydrolysis of the particles of rosin. Here the non-hydrolyzed particles act as a protective colloid so that the free rosin in the solution does not precipate even after standing a long time. The part played by free rosin in sizing is therefore of primary significance. This conclusion is supported by the fact that in practice solutions are made with highest possible proportion of free rosin. On the other hand when the quantity of free rosin is not sufficient (minimum somewhat over 40%), the rosin particles are partially hydrolyzed. Solutions with non-hydrolyzed rosin form by flocculation with aluminum sulphate a corresponding skeleton of resinate about the free rosin deposited by flocculation on the fibers. Thus the most effective sizing of paper is produced and the most durable paper. Solutions containing partially or completely dissociated particles of rosin, on the addition of aluminum sulphate, give rise to the formation of aluminum hydrate with or without aluminum resinate on the paper fibers. A less effective sizing is obtained in this way, and a lower temperature on the drying cylinders and calenders, whereby aluminum hydroxide reacts with the free rosin to form resinate. If paraffin is used instead of free rosin a similar reaction takes place, depending on the degree of concentration of the solutions. If the solutions (or suspensions are very dilute, that is to say, with almost complete hydrolysis, the rosin and paraffin are flocculated out by the aluminum hydroxide and the desired effect is lacking. If, on the other hand, stronger solutions are taken, in which hydrolysis is not complete, a paraffin impregnation is obtained due to surrounding the fibers with aluminum hydrate and aluminum resinate, the result being a waterpoof paper or board. If the various theories of sizing are compared in the light of recent knowledge, it will be seen that the sizing theory of Vauquelin before 1877, must be accepted as the correct one and that the modern theories are only elucidations of special cases.—P. B.

Colloidal Chemistry and the Paper Industry. *Boll. R. Staz. Sperimentale Per L'Indus. Della Carta,* Nos. 8 & 9, Aug. & Sept. 1924. The old theories of Wuerster and Illig have been superseded by the discoveries in crystallography of Dr. Max Laue of Munich whose recent investigations into the internal structure of crystals have revolutionized the science of colloid chemistry. The author accepts the theory of the electric sizing of paper. The attraction between the rosin particles and the fibers is due to the presence of surface charges. The hydrate of aluminum, for example, with a positive charge is attracted by the fibers which have a negative charge, and is precipitated on these thus neutralizing the load, that is, rendering it isoelectric. To impart a stable size to the paper it is necessary to use a sufficient quantity of sulphate of aluminum, so that the positive charge of the hydrate of aluminum, which forms by hydrolytic association, suffices to neutralize the negative charge of the rosin and celluose. All authorities are now agreed that "the true reason of rosin sizing is to be sought in the phenomena of coagulation, of the electro-absorption which occurs between colloidal suspensions, electrolytes and the fibers of the pulp." Still other factors are: relative humidity, degree of digestion, of coloration, and methods of mixing in the beater. Methods of measuring the surface tension of the cellulose of the viscosity of the liquid, and of flocculation, are described.—P. B.

Sizing of Paper in the Presence of Hard Water. *Indus D. Carta,* No. 5, 27, Mar. 31, 1924. See *Paper Trade J.* 79, No. 24, 50 (Dec. 11, 1924).—P. B.

Sizing Paper with Rosin E. Sutermeister. *Am. Dyestuff Rept.* 13, 513-516, 548-552 (1924); *Paper Making* 43, 503-506 (Sept. 1924); 538-541 (Oct. 1924). The variable factors influencing the results from the use of rosin size are listed in 23 particulars under the headings preparation of sizing materials, operations in the beater and on the paper machine. These factors are severally discussed. The results thus far obtained by individual experimenters have been contradictory as would be expected considering the many factors involved. The enormous amount of work necessary to bring to a satisfactory conclusion adequate studies of this problem is beyond the scope of a commercial or of a manufacturing laboratory, and a government or university laboratory is the proper place in which to carry them out.—A. P.-C.

Durability of Latex Paper. Frederick Kaye. *World's Paper Tr. Rev.* 28, 1282, 1284, 1286 (Oct. 17, 1924); *India Rubber J.* 68, 809-813 (1924). Figures are given showing that several samples of latex paper made in different mills had deteriorated but slightly (in most cases practically not at all) after exposure for 1 yr. or more to the climate of Ceylon; that cheap latex writing paper stands up as well as bank note paper (containing no latex) on exposure to sun and air for 6 weeks; and that both laboratory hand made and commercial machine made latex papers of many different fibrous compositions had practically the same bursting strain after 3 to 4 years as when they were first made. On testing the latex and non-latex papers made by Shaw and Bicking about two years after they were made, the author found that the feel, texture, breaking length and bursting strain of the latex papers were in most cases higher than those of the corresponding non-latex papers. The folding endurance of the wrapping papers, both with and without latex, had decreased in nearly equal ratios, which may be due to differences in the testing machines.—A. P.-C.

Casein Size. A. E. Regnier. U. S. pat. 1,506,081, Aug. 26, 1924. Casein size prepared with alkali cannot be used with pulp colors in wall paper printing because of its reaction with the acid colors used, resulting in changes of shade. It has been necessary to use animal glues or starch glues, which are not waterproof, with the result that the colors run when wet. This is overcome by using an acid size made by treating casein with sodium fluoride. From 8 to 16 lb. of sodium fluoride are heated to 160° F. with 100 lb of casein (preferably hydrochloric acid casein) and 400 lb. of water. Mixtures of sodium fluoride and casein may also be shipped dry and made into size as desired. Addition of ammonium oxalate or of trisodium phosphate decreases the viscosity of the size without reducing its adhesiveness.—A. P.-C.

Coating and Filling Materials

Bentonite. Jerome Alexander. *Ind. Eng. Chem.* 16, 1140-1142 (Nov. 1924); *Paper* 35, 100 (Nov. 6, 1924). A brief review of its properties, occurrence and origin, composition and uses.—A. P.-C.

Use of Glue for Coated Paper. V. H. Gottschalk. *Paper Trade J.* 79, No. 20, 46-49 (Nov. 13, 1924). Investigation of glue-bound clay-coated papers showed: The amount of glue needed in a coating mixture varies almost directly with the grade of the glue, and is not greater than 4/5 (and may be actually less than) the amount of best casein used in present day coating formulas; the coating technic with glue is the same as with casein, except for the necessity of regulating the temperature of the clay-glue mixture; the water resistance of glue-bound coated paper can be improved by small amounts of chrome alum, and regulating the acidity of the coating mixture may also be a factor in water resistance; the

printing quality of glue-bound, clay-coated paper as judged from a small number of preliminary printing tests is satisfactory with present day printing inks; a study of the colloidal properties of coating clays is a desirable preliminary to further work on the clay-suspending power of glues and on the elimination of mottling in coated papers; uniform results may be attained by the use of glue bought on specification. A brief discussion of the specifications of coaters' glue is given.

Casein Adhesive. H. L. Prestholdt. U. S. pats. 1,506,201, 1,506,203, Aug. 26, 1924.—*No.* 1,506,201. The following formula is given: casein 50 to 75 parts, calcium hydroxide 10 to 20 parts, sodium phosphate 5 to 15, sodium hyposulphite 2 to 8, calcium chloride 2 to 5, castor oil 1 to 4, kerosene 2 to 7. *No.* 1,506,202. The formula is casein 50 to 75 parts, dextrine 2 to 8, starch 3 to 12, calcium hydroxide 6 to 12, magnesium oxide 10 to 20, sodium hydroxide 2 to 8. The adhesive may be distributed in dry form. When the dry powder is mixed with water reactions occur that develop the adhesive properties. Calcium hydroxide in solution with casein forms a calcium caseinate, imparting waterporof qualities to the glue powder. Sodium hydroxide digests the starch and is a casein solvent. The sodium hydroxide in combination with calcium hydroxide would effect the solution of the glue powder, but it would quickly become gelatinous and set. Magnesium oxide is introduced for the purpose of retarding this process, which it does and imparts to the glue solution a liquid life of several hours. *No.* 1,506,203. The formula is: casein 50 to 75 parts, dextrine 2 to 8, calcium oxide 10 to 20, sodium fluoride 2 to 10, sodium chloride 1 to 5, oil 1 to 4, resin 1.—A. P.-C.

Report on Commercial Mill Test for Clay Retention in Paper and Losses in White Water. *Paper Trade J.* 79, No. 18, 119-122 (Oct. 30, 1924). A detailed account of a commercial scale test covering the manufacture of 5 tons of finished paper, which showed 77.62% clay retention, and 89.62% recovery of the total furnish. By use of a saveall, from which water is taken for furnishing and washing down the beaters, the loss of fiber and clay per 24 hr. is reduced from 2,369 and 3,311 lb. respectively, to 31 and 168 lb., respectively.—A. P.-C.

Miscellaneous

Lignosulphonic Acid Obtained by the Action of Sulphurous Acid on Spruce Wood. Charles Doree and Leslie Hall. *J. Soc. Chem. Ind.* 43, 257T-263T (Aug. 1, 1924); *Cellulosechemie* 5, 71-78 (1924). The authors give a detailed account of an investigation carried out on waste liquor obtained by Cross and Englestad's aqueous sulphurous acid process (Eng. pat. 202,016 of May 8, 1922, PAPER TRADE J. 79, No. 6, 56, Aug. 7, 1924; *Pulp & Paper* 22, 789, July 31, 1924), from which they draw the following conclusions: Aqueous sulphurous acid is able to resolve the coniferous wood substance giving as the chief non-cellulosic product a lignosulphonic acid, $C_{20}H_{30}O_{12}S$. This acid differs from those previously obtained from the calcium bisulphite process in containing a lower proportion of sulphur, 5.5 against 7.3%, but shows a general resemblance in properties, e.g., in its reactions with baryta; but the products, though of a similar type, are specifically different. The acid was purified by prolonged dialysis of the by-product liquor and, on fractionation by beta-naphthylamine, behaved as a homogeneous substance resembling the alpha-lignosulphonic acid of Klason. A study of the acid, $C_{28}H_{40}O_{22}S$, has led to the dissected formula $C_{22}H_{18}O_2(SO_3H)(OH_3)(CH_2OH)(CHOH)(CHO)(OCH_3)_2$, in which all the oxygen atoms but two are accounted for. The action of 5% nitric acid leads (a) to the removal of the sulphonic groups as sulphuric acid, (b) to oxidation of the CH_2OH and the CHO groupings as carboxyl, while the CHOH grouping becomes CO, (c) to nitration, resulting in the formation of a nitro compound, $C_{28}H_{30}O_{18}N_2$. The reactions of the nitro groups differ entirely from those of, for example, the nitrophenols. Further oxidation with fuming, or with 32% nitric acid, gives oxalic acid, and an acid shown by experiment to be $C_{20}H_{24}O_{12}(COOH)_6(NO_2)_2$. The persistence of the C_{28} unit through all these changes with a resistant nuclear unit of the order C_{20} leads to the conclusion that the nucleus of lignone is hydroaromatic in character, consisting of a complex of reduced rings, with absence of oxygen linkings, attachment of the side groups, including the CHO groupings, directly to the carbons of the ring, and the presence of double linkings in the reduced rings.—A. P.-C.

Determination of Alpha-Cellulose. Carl G. Schwalbe. *Papierfabr.* 22, 404-406 (Aug. 31, 1924); *Wochbl. Papierfabr.* 55, 2261-2263 (Sept. 6, 1924); *Zellstoff U. Papier* 4, 180-182 (Aug., 1924). The terms alpha, beta and gamma cellulose do not have the same meaning for wood pulps as for cotton and jute. Beta or acid-precipitated cellulose is not a homogeneous substance but consists of a mixture of an alkali-soluble cellulose and its decomposition products, the nature of which depends upon the sample tested. Alpha-cellulose is not absolutely resistant to alkali; repeated extractions do not yield a completely insoluble residue. The concentration of the sodium hydroxide, the temperature, and the time are important factors in the procedure. Alpha-cellulose is not a uniform product, but contains pentosans in an amount depending upon the extent of the extent of the alkali treatment. The use of barium hydroxide instead of sodium hydroxide is recommended, chiefly because the former reagent does not attack the cellulose. The pentosans are not removed but can be estimated easily in the usual way. This determination is termed the baryta resistance value (C. A. 16, 2222, 1922). The so-called "corrected baryta resistance" value is obtained by subtracting the pentosan value. Another advantage in this method is found in the easily reproducible experimental conditions. The alpha-cellulose value, on the other hand, varies with the method of mixing and kneading the sample with the alkali; the use of a porcelain ball mill is suggested to eliminate this personal factor. Filtration difficulties are not unusual with the alpha-cellulose determination.—J. L. P.

New Mill of Frank Smith Paper Co. *Paper Ind.* 6, 1227-1229; 1293, 1295 (Oct. 1924). A description of the mill and its equipment.—A. P.-C.

Board Making Process at Gardner & Harvey Plant. *Paper Ind.* 6, 1234-1235 (Oct. 1924). Description of the plant and process.—A. P.-C.

A Saveall for the Separation of Heavy Material from Liquids and the Recovery of These Materials for Paper and Pulp Manufacture. E. Lehner and Schmalz. Ger. pat. 398,291. *Papierfabr.* 22, 359-360 (Aug. 3, 1924). A conical apparatus is so arranged as to permit the heavy materials, in a liquid suspension, to settle and be easily recovered.—J. L. P.

Paper Reinforcing Machine. K. Wandel assignor to Industrial Foundation, Inc. U. S. pat. 1,494,970, May 20, 1924. Reinforcing threads are laid crosswise in more or less diagonal direction between two sheets of paper which are glued together. But instead of revolving a number of heavy spools of thread at a relatively high speed in order to lay the threads with the proper crosswise disposition and spacing on the moving paper web, the spools are stationary, and the only moving part of the thread laying mechanism is the actual thread laying means which applies the threads to the moving paper and which is preferably located close to the nip of the press rolls which unite the threads to the paper.—A. P.-C.

Machine for Applying Reenforcing Filaments to Fabrics. P. T. Jackson and C. H. Howard assignors to Paper Prodcuts Machine Co. U. S. pat. 1,472,021, Oct. 23, 1923. Unspun fibers in substantially their natural condition, e.g., ramie, hemp, sisal, flax, etc., are fed longitudinally to a paper web, and secured to it by means of a suitable adhesive. The web is then cut, and the resultant sheets are glued to another sheet, which may or may not have similar reinforcing fibers. When both sheets are reinforced, they are glued together so that the fibers on the two will be at right angles, and will be enclosed inside the two layers of paper. The adhesive is preferably waterproof.—A. P.-C.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

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THE AMERICAN PAPER AND PULP ASSOCIATION

Conducted by THOS. J. BURKE, C.A., Sec-Treas

Appraisals and the Profit and Loss Statement*

By H. G. Baldwin of The American Appraisal Co.

A discussion of "Appraisals and the Profit and Loss Statement" will necessitate some fine distinctions as to the relative importance of the facts involved if we are to cover the essential details of the subject in the short space of a half hour. All profit and loss statements are influenced by specific conditions and no single formula has yet been devised that will turn loss into profit either with or without an appraisal. That the appraisal plays an important part, however, in the determination of profit or loss will not be denied by anyone who has ever given the matter more than casual study.

Two Ways of Making Profits

Broadly speaking, there are two ways of making profits. The first is to increase the sales price of a given product and try to sell it at that price. The second is to increase the volume and efficiency of production and thereby reduce its cost. The second plan created cost accounting and the utility of the appraisal in cost accounting can be better understood if we consider some of the problems encountered in the early practice of cost accounting.

The cost of manufacturing was a composite cost and the obvious initial step in its reduction was to isolate each unit of cost and analyze it. To use a homely simile, the idea was to prune the parasitic limbs of the tree of production in order to improve the quality and size of the fruit. The cost of materials and labor was always in evidence for these items were paid for currently but there seemed to be no way to measure the wear and tear of the tools of production.

Considerable Miscellaneous Expense

Every one recognized that there was also considerable miscellaneous expense that had to be met as a result of this wear and tear.

For instance, it was common knowledge that the two Brown brothers were hired to keep the machinery operating, that the brick in the old factory building had to be repointed three years ago and that last month a bill came through for two new lathes for the machine shop but while everyone knew these facts no one was prepared to show that this expense was important enough to be considered along with the monthly bills. Ultimately these costs thrust themselves on the management so forcibly that something had to be done about it. They were so erratic and casual in their occurrence, however, that the attempt to recover them was equally casual.

An attempt was finally made to cover them by deducting a given sum from gross profits, but the matter appeared so relatively unimportant that this deduction grew to depend more or less on the personal view of individual management which, in turn, came to be largely influenced by the expediency of the moment when the balance sheet was struck. If the year's profits had been good the deduction was in order, but if the profits were subnormal it did not appear advisable to further curtail them by deducting an expense that at best appeared to be theoretical. Property costs were comparatively stable, the Brown boys kept the wheels turning efficiently, business would be better next year and profits would permit doubling the usual depreciation.

As long as the low cost and ease of recovering natural resources provided a constant supply of moderately priced raw materials, and as long as market prices remained comparatively stable this method of recovering depreciation exacted no disastrous penalties.

An Upheaval of Economic Conditions

In 1913, however, we experienced an upheaval of economic conditions. Our sense of relative values was made obsolete almost overnight and the only definite and assured fact about this change today is that we will be years getting back to what we have been used to consider a normal level of values if, indeed, we ever get back to them. The foremost authorities are agreed that so-called high prices have come to stay and surely when one considers the demands of labor and other pertinent factors there is every reason to respect this opinion. This item of depreciation, always worthy of more thought and attention than has been generally given to it in the past, thus becomes a highly important factor in computing true cost.

The doubling and trebling of the cost of the tools of production has doubled and trebled the potential error involved in estimating depreciation. Modern competitive and trade conditions no longer make it possible or safe, as in the past, to take excessive sums for depreciation out of gross profits at the end of the fiscal year. The time has come when depreciation based on the facts regarding the accrued depletion of property assets, must be anticipated in the sales price in order to at least assure a return of investment.

Two Radically Different Things

The depreciation of property and the loss of utility of that same property are two radically different things. The loss of utility of property is determined by measuring the extent of deterioration, wear and tear, obsolescence, inadequacy, etc., after giving effect to maintenance upkeep and other factors tending to retard loss of utility. It is conveniently expressed in a unit of percentage. Depreciation

Cost Section

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is the measure of this loss of utility and its amount depends entirely on the basis of value against which this percentage is applied.

For instance, the rate of the loss of utility may be exactly the same on two buildings, one erected in 1912 and the other in 1917 but their depreciation may vary ninety per cent because of the difference in their cost. The importance of having a correct basis of value on which to compute depreciation is clearly evident in this example. Of equal importance, however, is the accurate determination of the loss of utility. The deterioration, wear and tear, etc., of property is a real and tangible phenomenon that can be measured with a very fair degree of scientific accuracy. They are constantly going forward, irrespective of profit or of loss and a small percentage of error in measuring its extent in a half million-dollar property may, under present conditions, easily reduce apparently adequate profits to the point where they represent but little more than interest on investment.

Relation to Present Day Practice

Let us consider these facts in their relation to present-day accounting practice where the appraisal is not used. Depreciation in present-day standard accounting practice is computed on the investment in property as shown by the books of account. Its function in such cases is nothing more or less than the amortization of investment for books of account are primarily intended to record investment in property. The loss of utility of property cannot be measured in the books of account for in no sense of the word is the investment in property a property record any more than the value of an inventory is a record of the items of property entering into that inventory.

The loss of utility cannot be measured with any assurance of even approximating the facts unless the units on which the estimate is made are considered individually. There is no place in the books of account where one can identify the light and heavy-duty presses, or the lathe that operates two shifts instead of one, or yet the automatic screw machine that demands the constant renewal of its cams and gears. Any estimate of the percentage of the loss of utility determined without a study of these individual units cannot fail to contain an appreciable element of error which contaminates the depreciation when this estimated percentage is applied.

If, in addition to this factor, the basis against which such percentages are applied does not even reflect the true cost of the property the error is compounded. Industry's recent and dearly bought experience with the Income and Excess Profits Tax laws is an excellent indication of its position in this regard.

Feverish Search for Records

The feverish search for records that would prove the investment of capital was universal and is still going forward even now. Understated plant values were the rule and not the exception. Property had been acquired for years that had never been capitalized. Excessive depreciation had been written off, records of investment had been lost or destroyed and properties had been purchased at receiver's sales at half their value and their true value never reflected on the books. There is a long list of other examples but their effects as far as the books of account are concerned are identical.

The trend of all these policies was toward conservatism which is a splendid quality but it could not be made to "pinch hit" for facts when the facts were badly needed, and American Industry paid a heavy toll for its experience. If books of account were understated for invested capital they were equally understood for computing depreciation and this condition exists today in most books of account where the costs have not been restated by comprehensive retrospective appraisal service.

Inventorying Each Unit of Property

We make the modern appraisal, for whatever purpose, by inventorying each unit of property and recording its type and quality to the end that it may be intelligently priced. Each unit is examined for condition and utility, its operation observed, its age determined and checked, its upkeep investigated and all such data is in turn balanced against the data of thousands of like units accumulated in some twenty-nine years of appraisal practice. From this appraisal a property ledger may be opened and carried forward intelligently.

For cost accounting purposes these units are grouped in the appraisal according to their use in production. This grouping may follow departmental lines within a building or may be again subdivided by groups within a department. Quite often it may be grouped according to an accounting classification that will embrace units in several buildings. The idea, in each case, is the same, i.e.: to determine the investment or value in such units, to measure the loss of value to date and to determine the rate at which this value is being lost. The value of the power equipment and transmission and the equipment necessary to operate, including the floor space, lighting, heating and sprinkler systems are all distributed over these units according to service and the cost accountant can marshal the facts thus reported and plan his attack correctly.

By identifying labor and material costs with these groups the production cost of each department or each operation is available and with the addition of factory overhead the cost of manufacture is available in any form for any kind of analysis. By having a record of the true investment or value of each production unit, overhead costs, including depreciation, can be distributed correctly. Insurance, capital stock and personal property taxes and other franchise fees paid to state and county governments are all based on investment and must be distributed on the same basis if true costs are to be properly allocated to production units.

Resents Unequal Distribution

The factory executive, responsible for holding costs to a minimum resents the unequal distribution of overhead cost. After saving a penny here and there he feels most keenly the penalty of two pennies of overhead cost, over which he has no control. The equitable distribution of overhead costs which the appraisal makes possible is a real factor in maintaining morale. The appraisal for cost accounting is rapidly coming into universal use but there are still thousands of institutions operating on the old basis. Many of them remind me of a good friend of mine who has some peculiarly violent prejudices about knowing the cost of operating his automobiles.

He keeps three of them for the convenience of his family and himself and when I once asked him if he had any idea what they cost him per mile of operation he said, "I should say not. Do you think I want to sit and watch that speedometer and count 15—30—45—60 every time it turns over?" There is still another class that have so wholesome a respect for the high cost of determining costs that they deny themselves the benefit that an appraisal would give them. The cost accounting appraisal may be used for the placing of insurance and the collection of fire loss, for sale, merger of bonding purposes, for setting up a permanent property ledger, and it also forms the basis for a continuous property record that may be carried forward indefinitely at a comparatively modest cost.

Courage and Dexterity Required

At present, and for some time to come, it is going to require courage as well as dexterity to look at manufacturing costs squarely with one eye and at the same time look at competitive costs with the other. We are entering a competitive era that has no parallel in our industrial history. Labor, material and property of all kinds are commanding prices that are more than double those of 1913. Industry is still largely operating 1913 property, and computing depreciation on the basis of 1913 investment without considering the excessive cost of replacement in the selling price.

I am not disposed to attack this policy without reservation but my personal conviction is that it is not sound. There is no in-

herent value in a dollar. The products of the sweat of labor combined with the vision and courage of capital are the major factors in the creation of value and the tools of production come under this classification. If a parcel of real estate enhanced in value over a period of years no one would think of selling it at its orginal cost. It is a common practice to adjust sales prices to keep pace with the increasing cost of raw materials and of labor.

Why Should Other Factors Be Ignored?

If these principals are sound why should the enhanced value of the tools of production be ignored because the enhancement is extended over years instead of months?

Why should the generation that is using the product of high cost property be exempt from paying its proportionate share of the cost incident to that production? Is there any good economic reason or is there any equity in so exempting them? With no indication of a return to what we are used to consider a normal level of prices, why should manufacturers continue, in the face of ten years of high property costs, to compute depreciation on their origianl low costs, and to distribute what appears to be profits that may ultimately have to be recalled to replace exhausted property?

Competitive trade conditions may temporarily dictate a modification of selling prices irrespective of costs, but it is a foregone conclusion that such conditions are temporary for ordinary business judgment will prevent anyone from continuing a business that does not yield adequate profits. The facts regarding costs are equally important irrespective of whether the product is sold at a profit or at a loss. If sold at a profit the amount of profit is of vital importance to intelligent management and if sold at a loss this importance is raised to the nth power.

The inclusion of sufficient depreciation in selling prices to replace the tools of production would seem, therefore, to be a policy that present and potential replacement costs would justify as a measure of self preservation if for no other reason.

Bas's for Computing Depreciation

The appraisal furnishes the basis for computing current depreciation and once made, may be carried forward from year to year to report the enhancement or decline in values. The accountant is thus enabled to anticipate replacement cost in the selling price on the basis of the loss of utility incurred during the time that the product was manufactured. Such a practice has much to recommend it. If the units of a property were exhausted simultaneously and replaced, sales price would have to be readjusted according to market costs as is the practice with raw material and labor, or the excess of investment necessary to replace the properties would have to be taken out of capital.

To double plant investment or sales price would be unpleasant to say the least. The danger lies in the casual exhaustion of property while the fact that the loss is absorbed gradually does not in any way alter the fact that it is a loss. In the transsition from operating low cost property to operating high cost property the penalty will ultimately be the same whether it is incurred now or when replacements are finally made. This handling of depreciation need not disturb the usual routine orthodox accounting practice in any way.

Fixed Assets and Capital Account

On the assumption that almost every one will be interested in the matter let us outline one way in which it may be handled. Assume the following balance sheet containing only fixed assets and capital accounts:

Assets		Liabilities	
Fixed assets	$400,000	Reserve for depreciation	$100,000
		Capital stock	250,000
		Surplus	50,000
	$400,000		$400,000

Assume that an appraisal at present-day replacement costs shows fixed assets of $700,000 replacement and $500,000 sound value. The following journal entries would set up this appraisal:

Fixed assets		$300,000
Reserve for appreciation	$200,000	
Reserve for replacement	100,000	

The sound value of the plant was stated by the books to be $300,000, this being the difference between the original cost of the fixed assets and the depreciation reserve. The appraisal states this value to be $500,000 and it is apparent that the total increase in value secured by the appraisal of the property is $200,000.

This increase in sound value is placed in the reserve for appreciation and the difference between depreciation on a cost basis and depreciation on the basis of appraisal costs is placed in a reserve for replacement.

Opening Balance Sheet

Thus adjusted, the opening balance sheet would be as follows:

BALANCE SHEET

Assets		Liabilities	
Fixed assets	$700,000	Reserve for depreciation	$100,000
		Reserve for replacement	100,000
		Reserve for appreciation	200,000
		Capital stock	250,000
		Surplus	50,000
	$700,000		$700,000

Let us assume that the appraisal from which these adjustments have been made, shows certain depreciations that collectively amount to 10% per annum.

During the year, or at the end of the year we would charge off depreciation as follows:

	Dr.	Cr.
Profit and loss	$70,000.00	.....
Reserve for depreciation	.....	$40,000.00
Reserve for replacement	.....	30,000.00

The $70,000 debit is the application of the annual composite depreciation rate of 10% applied to the current appraisal cost of reproduction. The credit to the reserve for replacement represents the excess liability for depreciation over and above the depreciation taken on cost. In this case it is $30,000. If, however, for income tax or other purposes depreciation, as charged off on book cost, should be at a higher rate than the depreciation that was actually suffered, the reserve for replacement would always be credited with the residual amount of the depreciation actually suffered after depreciation on book cost has been computed.

Integrity of Records Preserved

By so establishing and maintaining the reserve for replacement account we preserve the integrity of the records of investment, present an intelligent and defendable statement to the tax examiner and yet maintain a faithful measure of the accrued liability for replacement over and above the depreciation taken on the investment. At this time the first continuous service appraisal report is due.

Assuming no change in the fixed assets, let us presume that this report, after giving effect to changed operating and maintenance conditions and fluctuating market costs, shows fixed assets of $650,000 cost of reproduction and $400,000 sound values which would indicate a decline in market prices in the cost of reproduction of the property of $50,000 and a loss of utility of $100,000 part of which was undoubtedly brought about by the decline in market prices. Let us further assume that net book profits for the year before depreciation were $150,000.

The adjusting entries would be as follows:

	Dr.	Cr.
Reserve for appreciation	$60,000	.....
Reserve for replacement	20,000	.....
Fixed assets	.....	$50,000
Appreciation surplus	.....	30,000

The reserve for appreciation remains as before the difference between net value as shown by the books and net sound value as shown by the appraisal.

Net Sound Value

Net sound value as shown by the continuous service appraisal was $400,000, net cost was $400,000 less $100,000 accrued depreciation, less $40,000 this year or a net depreciated cost of $260,000, which, deducted from net sound value indicates that the adjusted reserve should be $140,000. We are now ready to adjust the reserve for appreciation. The previous reserve for appreciation was $200,000 whereas the present reserve as adjusted by the appraisal should be $140,000 which means that we must reduce this reserve by debiting it with $60,000.

As before stated, the reserve for replacement is the difference between deprciation on the basis of appraised costs and on the basis of original costs. According to the last balance sheet, depreciation on cost was $100,000 to which must be added the $40,000 taken off during the current year. The adjusted appraisal depreciation is the difference between appraisal cost ($650,000) and sound value ($400,000) or $250,000 which, after deducting the $140,000 on a cost basis, leaves a difference of $110,000. The original reserve for replacement was $100,000 to which we have added a charge to the reserve for replacement of $30,000 chargd off during the current year, or a total accumulated reserve of $130,000 which should now be $110,000. It is apparent that we have to adjust this reserve by debiting it with $20,000.

Fixed assets on the basis of appraised costs were reduced by $50,000 during the year by the decline in prics. We, therefore, credit fixed assets account with that sum and a new account now appears which we may call the appreciation surplus. It represents the depreciation written off the excess of appraised costs over original costs and earned through use having been recovered through the sales price.

Reserve for Appreciation Reduced

The reserve for appreciation is thus reduced by this depreciation each year. This account should represent earned surplus appropriated for a specific use and not available for dividends.

After these adjusting entries the balance sheet would be as follows:

Assets		Liabilities	
Cash, etc.	$150,000	Reserve for depreciation..	$140,000
Fixed assets	650,000	Reserve for replacement..	110,000
		Reserve for appreciation..	140,000
		Appreciation Surplus	30,000
		Capital stock	250,000
		Surplus	130,000
	$800,000		$800,000

Surplus has, of course, been increased by the year's profits less this year's depreciation. The other items will need no explanation.

An analysis of this balance sheet is interesting. For instance:

Fixed assets (appraised cost)		$650,000
Less reserve for depreciation (cost)	$140,000	
Less reserve for replacement	110,000	
		250,000
Net sound value		$400,000
Less reserve for appreciation		140,000
Depreciation cost		$260,000
Add reserve for depreciation (cost)		140,000
Original cost		$400,000

It is thus apparent that the current cost of assets may be corrected each year and affect only the two accounts, reserve for appreciation and for replacement besides, of course, the asset account. Such a method of calculating depreciation for cost accounting is not in any way difficult and if the appreciation earned through use each year is considered, it will not change the total net income in any way. An accurate measure of net income for income tax purposes is always available and a return of the full measure of the value of assets is assured for provision is made for replacements over and above the cost of the old assets throughout the period of use.

Such a method measures accurately each year the accumulating liability for the replacement of fixed assets. They are trading assets in every sense of the word. Their depreciation enters into the cost of the product just as much as raw material, and in my opinion they should be considered in this manner. It may also be well to call attention to the fact that this method does not inject any element of water or inflation into the statement but always displays the assets as inventoried, at cost or market whichever is lower. The banker will appreciate such a statement for it tells him many things that he likes to know.

I wish that I could take the time to tell you of our progress in the scientific determination of depreciation but it is a subject that would require the whole evening. I would like to say, however, that its determination is no longer a matter in which educated speculation plays the leading role. Twenty-nine years of appraisal practice which has developed into the handling of over $4,000,000 of property every business day has uncovered an enormous number of facts about property that is rapidly ruling out personal opinion and educated speculation in its calculation. As appraisers, we realize keenly our responsibility. We are organized and equipped to work with the cost accountant in handling specific problems relating to tangible properties.

To Be Most Carefully Read Page

For the next few years the profit and loss statement is going to be the most carefully read page in the books of account. If the story is written in red ink the cost accountant is going to be asked to explain it. He is going to need all the facts that he can command in order to do so and prove his answer. Without an appraisal he is being forced to work with makeshift tools. The appraisal is a universal tool for cost accounting. No pertinent fact about the value, utility, condition, size, quality or type of property escapes it.

With such a tool the cost accountant can meet with his board of directors at the council table and both can be assured that whatever the profit and loss statement may show they have the truth, the whole truth and nothing by the truth regarding their fixed property costs.

With these facts he may be compared to the general of a well disciplined army. One deals with costs and the other men. The general first organizes his men into units, and trains them to function as a unit. He then consolidates these units until, in the end, he has a complete disciplined whole, any part of which may be detached at any time from the main body for maneuvering, for attack or for defense. He is prepared to concentrate his strength where the attack is heaviest; his organization is flexible enough to enable him to meet emergencies, promptly, and is also prepared to sustain himself in hostile territory.

Without such an organization the army is nothing more or less than a mob and whatever results it may accomplish depends entirely on the genius and capacity of its leader and the absence of organized opposition. As no mob can prevail against trained and disciplined soldiers so no aggregate costs can compete with classified unit costs that are built up on the basis of the analyzed and proven facts that an appraisal affords.

J. E. Madore Goes with Cherry River Paper Co.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., May 26, 1925.—James E. Madore, superintendent of the Crocker Division of the American Writing Paper Company has resigned to take the position of superintendent of the Cherry River Paper Company at Richwood West, Va. Mr. Madore will be succeeded by Earl Esty who was assistant superintendent and Mr. Esty's place will be taken by George Reardon, son of the late William Reardon of the Albion Division. The changes are made in accordance with the announced policy of the Company to promote from within the ranks when possible. Mr. Reardon has been in charge of the finishing department.

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MAY 23, 1925

SUMMARY

News print.....3,710 rolls, 72 bls.
Wrapping paper.....618 rolls, 34 cs., 12 bls.
Printing paper.....152 rolls, 104 bls., 400 cs.
Paper hangings.....12 bls., 2 cs.
Wall paper.....54 rolls, 4 cs., 4 bls., 4 crates
Cigarette paper .....143 cs.
Packing paper .....1,111 bls.
Baryta coated paper.....97 cs.
Surface coated paper.....110 cs.
Colored paper..... ...26 cs.
Writing paper .....41 cs.
Drawing paper.....68 cs.
Filter paper.....85 bls., 5 cs.
Kraft paper.....109 rolls
Tissue paper .....44 cs.
Fancy paper .....8 cs.
Tracing paper .....17 cs.
Metal coated paper.....8 cs.
Decalcomania paper .....4 cs.
Duplex needle paper.....2 cs
Gallic paper .....2 cs.
Bristol boards .....3 cs.
Parchment paper substitute.....10 bls.
Formosa paper .....7 cs.
Vellum paper .....9 cs.
Paper bags .....5 cs.
Envelopes .....3 cs.
Spools of paper.....16 cs.
Paper books .....7 cs.
Paper tubes .....16 pgs.
Miscellaneous paper....67 cs., 2,024 rolls, 290 bls.

CIGARETTE PAPER

Max Spiegel & Sons, Cleveland, Hamburg, 21 cs.
The Surbrug Co., Majestic, Havre, 18 cs.
Zorro Tobacco Co., Britannia, Lisbon, 25 cs.
F. P. Gaskell & Co., Schodack, Bordeaux, 26 cs.
Standard Products Co., by same, 53 cs.

WALL PAPER

W. H. S. Lloyd, Scythia, Liverpool, 4 crates.
Gilbert, Leviathan, Havre, 2 cs.
R. F. Downing & Co., Minnewaska, London, 4 bls.
Janeway & Carpender, Gustavsholm, Gothenburg, 54 rolls.
Thomas & Pierson, Berengaria, Bordeaux, 2 cs.

PAPER HANGINGS

W. H. S. Lloyd & Co., Minnewaska, London, 12 bls., 2 cs.

DUPLEX NEEDLE PAPER

Boyle Needle Co., Virgilia, London, 2 cs.

NEWS PRINT

Parsons & Whittemore, Inc., Muenchen, Bermen, 650 rolls.
Irving Bank Columbia Trust Co., Andania, Hamburg, 865 rolls.
Irving Bank Columbia Trust Co., Cleveland, Hamburg, 161 rolls.
Chemical National Bank, by same, 65 rolls.
Parsons & Whittemore, Inc., Westport, Kotka, 671 rolls.
Parsons & Whittemore, Inc., Gustavsholm, Gothenburg, 1,298 rolls.
Maurice O'Meara Co., by same, 72 bls.

PRINTING PAPER

Hudson Trading Co., Cleveland, Hamburg, 93 rolls.
Keuffel & Esser, by same, 59 rolls.
Drinhausen Hollkott Paper Co., by same, 104 bls.
L. Schulman, Muenchen, Bremen, 53 cs.
Maurice O'Meara Co., Gustavsholm, Gothenburg 291 cs.
C. B. Harris, by same, 18 cs.
L. Schulman, by same, 28 cs.
Borroughs Wellcome & Co., Virgilia, London, 6 cs.
P. C. Zuhlke, Belgenland, Antwerp, 4 cs.

TISSUE PAPER

Iwai & Co., May Maru, Kobe, 14 cs.
Meadowa Wye & Co., Scythia, Liverpool, 5 cs.
F. C. Strype, by same, 22 cs.
Baldwin Universal Co., by same, 3 cs.

GALLIC PAPER

Keuffel & Esser, Virgilia, London, 2 cs.

BRISTOL BOARDS

Keuffel & Esser, Virgilia, London, 3 cs.

WRAPPING PAPER

Birn & Wachenheim, Cleveland, Hamburg, 10 cs.
F. C. Strype, Belgenland, Antwerp, 24 cs.
C. K. MacAlpine & Co., Stockholm, Gothenburg, 12 bls.
C. K. MacAlpine & Co., by same, 546 rolls.
British American Tobacco Co., Editor, Antwerp, 72 rolls.

PACKING PAPER

J. P. Heffernan Paper Co., Taibu Maru, Hamburg, 1,111 bls.

KRAFT PAPER

Arkell Safety Bag Co., Stockholm, Gothenburg, 109 rolls.

PARCHMENT PAPER SUBSTITUTE

Birn & Wachenheim, Cleveland, Hamburg, 10 bls.

FORMOSA PAPER

Standard Bank of So. Africa, May Maru, Kobe, 7 cs.

VELLUM PAPER

Wilkinson Bros. & Co., Inc., Colombo, Genoa, 9 cs.

METAL COATED PAPER

Perry Ryer & Co., Muenchen, Bremen, 8 cs.

BARYTA COATED PAPER

Globe Shipping Co., Muenchen, Bremen, 97 cs.

SURFACE COATED PAPER

P. C. Zuhlke, Belgenland, Antwerp, 65 cs.
Gevaert Co. of America, by same, 45 cs.

DECALCOMANIA PAPER

Phoenix Shipping Co., Pr. Roosevelt, Bremen, 4 cs.

FANCY PAPER

Whiting & Patterson Co., Majestic, London, 5 cs.
Whiting & Patterson Co., Berengaria, London, 3 cs.

WRITING PAPER

Guibout freres, Majestic, Havre, 7 cs.
Titan Shipping Co., Majestic, Paris, 1 cs.
F. C. Strype, Britannia, Marseilles, 8 cs.
E. Dietzgen & Co., by same, 19 cs.
American Express Co., Berengaria, Havre, 5 cs.
John Wanamaker, by same, 1 cs.

PAPER BAGS

Gabriel & Co., Pr. Roosevelt, Bremen, 5 cs.

ENVELOPES

Japan Paper Co., American Shipper, London, 3 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Minnewaska, London, 5 cs.
G. Lueders & Co., Rousillon, Bordeaux, 10 bls.
A. Giese & Son, by same, 75 bls.

DRAWING PAPER

E. Dietzgen & Co., Andania, Hamburg, 19 cs.
Keuffel & Esser, Cleveland, Hamburg, 35 cs.
Titan Shipping Co., Berengaria, Havre, 14 cs.

TRACING PAPER

Keuffel & Esser, Cleveland, Hamburg, 17 cs.

SPOOLS OF PAPER

J. I. Bernitz, Editor, Rotterdam, 16 cs.

COLORED PAPER

P. H. Petry & Co., Cleveland, Hamburg, 15 cs.
C. W. Williams & Co., Belgenland, Antwerp, 11 cs.

PAPER BOOKS

Japan Paper Co., Suffren, Havre, 7 cs.

PAPER TUBES

H. de Maguinn & Co., Suffren, Havre, 16 pgs.

MISCELLANEOUS PAPER

F. L. Kramer & Co., Minnewaska, London, 4 cs.
Roneo, by same, 45 rolls.
Independent Forwarding Co., Cleveland, Hamburg, 4 cs.
H. Reeve Angel & Co., Inc., May Maru, Kobe, 2 cs.
Chevarry, Inc., Majestic, Havre, 2 cs.
Wilkinson Bros. & Co., Inc., Colombo, Genoa, 24 cs.
Norwegian Paper Mills Agency, United States, Oslo, 524 rolls.
B. Altman & Co., Berengaria, Bordeaux, 1 cs.
Japan Paper Co., Stockholm, Gothenburg, 2 cs.
The Borregaard Co., Inc., by same, 290 bls.
The Borregaard Co., Inc., by same, 1,455 rolls.
E. H. Sergeant & Co., by same, 5 cs.
Japan Paper Co., Suffren, Havre, 7 cs.
Lunham & Reeve, by same, 3 cs.
G. Gennert, by same, 13 cs.

RAGS, BAGGINGS, ETC.

A. W. Fenton, Inc., Andania, Hamburg, 233 bls. rags.
E. J. Keller Co., Inc., Cleveland, Hamburg, 146 bls. bagging.
E. J. Keller Co., Inc., by same, 57 bls. rags.
E. J. Keller Co., Inc., by same, 38 bls. silkwaste.
E. J. Keller Co., Inc., by same, 165 bls. new cuttings.
Irving Bank Columbia Trust Co., by same, 39 bls. rags.
Irving Bank Columbia Trust Co., by same, 92 bls. ragging.
W. Barnett & Son, Rousillon, Bordeaux, 13 bls. rags.
1st National Bank, May Maru, Kobe, 23 bls. rags.
Atlas Waste Mfg. Co., May Maru, Osaka, 40 bls. rags.
M. Frank, by same, 10 bls. rags.
Jaffe Products Co., Mexico, Havana, 23 bls. rags.
A. Lowenstein, Taibu Maru, Hamburg, 110 bls. rags.
Castle & Overton, Inc., Muenchen, Bremen, 69 bls. ragging.
National City Bank, by same, 53 bls. rags.
National City Bank, American Shipper, London, 39 bls. rags.
Furness Withy & Co., Incemore, Belfast, 66 bls. paper stock.
Mechanics & Metals National Bank, by same, 65 bls. bagging.
National City Bank, by same, 122 bls. rags.
Albion Trading Co., Schodack, Dunkirk, 44 bls. rags.
D. M. Hicks, by same, 43 bls. thread waste.
Mutnick Bros., by same, 62 bls. rags.
Goldman Sachs & Co., Schodack, Bordeaux, 44 bls. rags.
Furness Withy & Co., by same, 34 bls. rags.
J. J. Patricof, by same, 173 bls. rags.
A. W. Fenton, Inc., by same, 57 bls. rags.
New York Trust Co., Virgilia, London, 110 bls. rags.
J. Cohen Sons Co., by same, 18 bls. rags.
Amsinck Sonne & Co., Inc., Serbino, Alexandria, 50 bls. rags.
A. W. Fenton, Inc., Abron, Constantinople, 327 bls. rags.
T. D. Downing & Co., Belgenland, Antwerp, 68 bls. flaxwaste.
E. J. Keller Co., Inc., Editor, Rotterdam, 41 bls. bagging.
E. J. Keller Co., Inc., Editor, Antwerp, 213 bls. rags.
A. W. Fenton, Inc., by same, 691 bls. rags.
National City Bank, by same, 45 bls. rags.
W. Barnett & Son, by same, 16 bls. rags.
Mutnick Bros., by same, 9 bls. rags.

OLD ROPE

W. S. Hall & Co., Cleveland, Hamburg, 40 coils.
Brown Bros. & Co., by same, 40 coils.

(*Continued on page 62*)

Imports of Paper and Paper Stock

(*Continued from page* 61)

Jaffe Products Co., Mexico, Havana, 50 bls.
Brown Bros. & Co., Muenchen, Bremen, 27 coils.
Brown Bros. & Co., Belgenland, Antwerp, 103 coils.
Brown Bros. & Co., Stockholm, Gothenburg, 62 coils.

MANILA ROPE

Ellermans' Wilson Line, Minnewaska, London, 29 coils.

SUNN ROPE

New York Cordage Co., Belgenland, Antwerp, 73 rolls.

WOOD PULP

Castle & Overton, Inc., Andania, Hamburg, 280 bls. woodpulp, 57 tons.
Scandinavian Pulp Agency, Inc., Trolleholm, Sweden, 875 bls. dry pulp.
Scandinavian Pulp Agency, Inc., by same, 5,500 bls. sulphite pulp.
Bulkley Dunton & Co., Trolleholm, Sweden, 7,000 bls. sulphite pulp.
E. J. Keller Co., Inc., Taibu Maru, Hamburg, 468 bls. wood pulp.
Nilsen Lyon & Co., Inc., Muenchen, Bremen, 675 bls. woodpulp.
M. Gottesman & Co., Inc., Clara, Sebenico, 4,560 bls. woodpulp.
Parsons & Whittemore, Inc., Stockholm, Gothenburg, 250 bls. sulphite pulp.
Price & Pierce, Ltd., by same, 125 bls. dry pulp.
Price & Pierce, Ltd., by same, 2,256 bls. wet pulp.
Bulkley, Dunton & Co., Westport, Essvik, 500 bls. chemical pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., Gustavsholm, Kotka, 134 rolls.
Lagerloef Trading Co., by same, 620 bls.

CASIEN

Atterbury Bros., Inc., Cavour, Buenos Aires, 1,252 bags.

BOSTON IMPORTS

WEEK ENDING MAY 23, 1925.

G. W. Millar & Co., Inc., Taibu Maru, Hamburg, 24 rolls wrapping paper.
J. H. Scott Paper Co., by same, 83 rolls printing paper.
G. F. Malcolm & Co., Scythia, Liverpool, 15 cs. tissue paper.
Lafayette Worsted Co., Barbadian, Antwerp, 2 cs. wrapping paper.
G. F. Malcolm & Co., Nitonian, Liverpool, 17 cs. tissue paper.
Baxter Paper Co., Korsholm, Gothenburg, 34 bls. paper.
W. Schall & Co., Barbadian, Antwerp, 105 bls. bagging.
American Exchange National Bank, by same, 39 bls. rags.
Old Colony Trust Co., by same, 15 bls. thread-waste.
E. Butterworth & Co., Inc., by same, 50 bls. flaxwaste.
J. Spoulding Fiber Co., by same, 229 bls. flax-waste.
Brown Bros. & Co., Barbadian, London, 159 bls. wastepaper.
Merchants National Bank, by same, 45 bls. rags.
2nd National Bank, by same, 108 bls. rags.
American Express Co., by same, 148 bls. rags.
Crocker Burbank Co., by same, 232 bls. waste paper.
Furness Withy & Co., by same, 71 bls. rags.
True & McClelland, Nitonian, Manchester, 20 bls. cotton waste.
Goshens & Cunliffe, by same, 160 bags hide cuttings.
Goshens & Cunliffe, by same, 18 bls. rag cuttings.
New England Waste Co., by same, 29 bls. rags.
T. D. Downing & Co., by same, 175 bls. rag cuttings.
Train Slith & Co., by same, 77 bls. rag cuttings.
Brown Bros. & Co., Barbadian, London, 381 coils old rope.
Brown Bros. & Co., by same, 54 bls. old rope.
Brown Bros. & Co., Barbadian, Antwerp, 105 coils old rope.
Pagel Horton & Co., Inc., Trolleholm, Sweden, 4,000 bls. dry pulp.
Pagel Horton & Co., Inc., Yokohama, Husum, 6,000 bls. dry sulphite.
Pagel Horton & Co., Inc., Yokohama, Gefle, 3,250 bls. dry pulp.
Atterbury & McKelvey, Mexicano, Tofte, 150 bls. sulphite pulp.
Nilsen Lyon & Co., Inc., Mexicano, Oslo, 250 bls. chemical pulp.
Nilsen Lyon & Co., Inc., Mexicano, Fredrikshald, 300 bls. sulphite pulp.
Atterbury Bros., Inc., Mexicano, Fredrikshald, 1,500 bls. sulphite pulp.
The Borregaard Co., Inc., Mexicano, Greaker, 250 bls. sulphite pulp.
J. Anderson & Co., Mexicano, Greaker, 2,220 bls. sulphite pulp.
Scandinavian Pulp Agency, Inc., Westport, Sundsvall, 400 bls. sulphite pulp.
Johneson Wales & Sparre, Inc., by same, 300 bls. sulphite pulp.
J. Andersen & Co., Korsholm, Gothenburg, 2,525 bls. sulphite pulp.
Scandinavian Pulp Agency, Inc., by same, 635 bls. sulphite pulp.
Scandinavian Pulp Agency, Inc., by same, 6,878 bls. kraft pulp.
The Borregaard Co., Inc., by same, 1,100 bls. dry pulp.
Price & Pierce, Ltd., by same, 500 bls. dry pulp.
Bank of America, Cavour, Buenos Aires, 1,250 bags casein.
Johaneson, Wales & Sparre, Inc., Asquith, Frano, 10,650 bls. kraft pulp.
Bulkley, Dunton & Co., Westport, Essvik, 1,250 bls. chemical pulp.
Bulkley, Dunton & Co., Asquith, Suderhamn, 2,500 bls. chemical pulp.
Bulkley, Dunton & Co., Trolleholm, Iggesund, 250 bls. chemical pulp.

PHILADELPHIA IMPORTS

WEEK ENDING MAY 23, 1925.

Paper House of Penna., Gustavsholm, Kotka, 84 rolls printing paper.
Paper House of Penna., by same, 494 rolls newsprint.
E. H. Bailey & Co., Incemore, Leith, 62 cs. paper.
Philadelphia National Bank, Taibu Maru, Hamburg, 38 bls. rags.
National City Bank, Incemore, Leith, 62 bls. rags.
Chase National Bank, by same, 54 bls. rags.
Grace National Bank, by same, 89 bls. rags.
Castle & Overton, Inc., Editor, Rotterdam, 57 bls. rags.
Castle & Overton, Inc., Editor, Antwerp, 43 bls. rags.
L. Sher, by same, 8 bls. rags.
Guaranty Trust Co., by same, 57 bls. rags.
R. Blank, by same, 414 bls. rags.
National City Bank, by same, 179 bls. rags.
A. Hurst & Co., Inc., by same, 189 bls. rags.
Maurice O'Meara Co., by same, 67 bls. rags.
E. J. Keller Co., Inc., Manchester Shipper, Manchester, 294 bls. bagging.
Ayres W. C. Jones Co., by same, 42 bls. cotton waste.
True & McClelland, by same, 134 bls. cotton waste.
National Bank of Commerce, by same, 17 bls. rags.
National Bank of Commerce, by same, 151 bls. rag cuttings.
2nd National Bank, Breedyk, Rotterdam, 95 bls. rags.
Brown Bros. & Co., by same, 69 bls. paper stock.
The Stone Bros. Co., Inc., by same, 277 bls. paper stock.
Chemical National Bank, by same, 76 bls. rags.
Philadelphia National Bank, by same, 36 bls. rags.
Castle & Overton, Inc., Collamer, France, 416 bls. rags.
Castle & Overton, Inc., Clontarf, Italy, 278 bls. rags.
Castle & Overton, Hornfels, Germany, 116 bls. rags.
New York Trust Co., Incemore, Leith, 121 coils old rope.
National Bank of Commerce, Breedyk, Rotterdam, 130 rolls rope.
Castle & Overton, Inc., Legie, Germany, 635 bls. wood pulp.
Castle & Overton, Inc., Folkvard, Norway, 1,000 bls. wood pulp.
Lagerloef Trading Co., Gustavsholm, Gothenburg, 304 bls. sulphite pulp.
Lagerloef Trading Co., by same, 462 rolls wood pulp boards.

CHARLESTON IMPORTS

WEEK ENDING MAY 23, 1925.

E. J. Keller Co., Inc., Shickshinny, Rotterdam, 45 bls. bagging.

BALTIMORE IMPORTS

WEEK ENDING MAY 23, 1925.

National City Bank, Hoxie, Cardiff, 221 bls. rags.
A. W. Fenton, Inc., by same, 217 bls. rags.
National City Bank, West Haven, Antwerp, 200 bls. rags.
Congoleum Co., by same, 102 bls. rags.
Alex Brown Sons, by same, 449 bls. rags.
Castle & Overton, Inc., Legie, Germany, 2,885 bls. wood pulp.
Johaneson, Wales & Sparre, Inc., Korsholm, Gothenburg, 3,949 bls. kraft pulp, 350 bls. sulphite pulp.

PORTLAND IMPORTS

WEEK ENDING MAY 23, 1925.

Pagel Horton & Co., Inc., Trolleholm, Sweden, 12,000 bls. dry pulp.
Bulkley, Dunton & Co., same, 5,000 bls. sulphite pulp.
National City Bank, by same, 2,500 bls. sulphate pulp.
Pagel Horton & Co., Inc., by same, 2,500 bls. sulphate pulp.
Bulkley, Dunton & Co., Essvik, 4,500 bls. chemical pulp.

NEW ORLEANS IMPORTS

WEEK ENDING MAY 23, 1925.

Castle & Overton, Inc., De La Salle, France, 290 bls. rags.
Castle & Overton, Inc., by same, 161 bls. rags.
Castle & Overton, Inc., Cranford, Holland, 126 bls. rags.

SAN FRANCISCO IMPORTS

WEEK ENDING MAY 23, 1925.

1st National Bank, May Maru, Kobe, 100 bls. rags.
The Paraffine Co., by same, 120 bls. rags.
C. Harley & Co., by same, 16 bls. rags.
Paris National Bank, May Maru, Osaka, 40 bls. rags.
Corn Exchange National Bank, by same, 40 bls. rags.

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New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL,
Wednesday, May 27, 1925.

At last there seems to be a real rift in the clouds which have been hovering over the paper market. It is not sufficient yet to let the sun burst through in all its glory but it is sufficient to be visible even to those whose pessimism has made them more or less near-sighted. Things are better today than they were two weeks ago—not materially better, it is true, but encouragingly so. Present day conditions seem to indicate that business has struck the bottom notch and that it is coming back. How far back it will come is, of course, a matter of guesswork but it now appears to be a certainty that it will improve from now on until the real protracted heated spell sets in. Then, of course, it is expected that business will proceed for some weeks in the summer rut from which nothing in the line of sales efforts can arouse it. But the real encouraging thing about paper business just now is that it indicates a reserve force which should shape up well for the Fall. Not yet has 1925 fulfilled any of the things which have been expected of it but there is a likelihood that it may yet redeem itself—that the Fall business may exceed expectations and that a Garrison finish may be made during the latter part of the year. The rift in the clouds is at least bringing new cheer into the hearts of the paper men and a more hopeful tone is prevalent everywhere. There is noted a very meager inclination to improvement but the actualities are slow about materializing. More interest is being shown by the buyers as is evidenced by their inquiries regarding this and that time, price considerations and the possibilities for immediate shipment or shipment on certain dates. Material betterment doesn't justify great elation but the promise of better things is certainly tangible enough to warrant it.

Up to the present time there has been no shrinkage in the excellent demand for news print. The orders keep coming along with their accustomed uniformity and as yet there has been no indication of a likely break. News print continues to exemplify in a 100 per cent measure the hopes of the paper industry.

There is quite a little better feeling in the fine paper field. The orders are coming along better and it looks as though a considerable betterment was due to materialize. The printers are buying more liberally and reports tend to show that the printing trade is well occupied at the present time and that good business can reasonably be looked for from this source.

While no such glowing report can be made of the coarse paper demand there is, even here, a slightly better call and it seems evident that the demand in this direction is going to multiply considerably before long.

The board business has recently showed improvement although it can not be said that it showed any gain the past week over the previous week. However, it is considered in a satisfactory condition and if it continues as good as it is now, there will be no complaint from the board men.

Mechanical Pulp

Mechanical pulp prices hold up well, production is fair and consumption is reasonably consistent. Supplies are moving sufficiently to prevent any unwieldy accumulation of stock.

Chemical Pulp

A firmness characterizes the chemical pulp market. Reports of occasional concessions are more or less vague and it is certain that concession-granting is not ruling the market. The demand at this time can hardly be considered as active but it is fairly satisfactory although much of it might be classified as "spotty."

Old Rope and Bagging

While old rope is not doing any too well there is a very slight gain in demand and the dealers think they can see indications of a change of attitude on the part of the buyers. The prices are low enough to attract business and it is something of a mystery why orders do not come through faster than they do. Practically the same may be said of bagging, there being a slightly better tone to the demand and a promise of more spirited action soon.

Rags

The rag market is being generally benefitted by the flurry in the demand for roofing stock reported a week ago. This improvement has apparently had a sympathetic effect all along the line and the market is today in better shape than it has been for weeks.

Waste Paper

There is little if any more animation in the paper stock market but prices are still hanging around the old levels. Buying is in small quantities for the most part and bear evidence of being regulated to meet immediate requirements only. Consumers apparently can see no advantage in stocking up at the present time. Prices are so low that the dealers complain of the small margin of profit and collections are being kept down. It is certain that higher prices will rule at the first opportunity and sooner or later the market is apt to show an insufficient supply of stock to meet any material increase in demand.

Twine

Twine keeps to its unswerving course, having only a nominal demand and holding to former price levels. The demand is considerably under the normal for this time of the year.

To Review Coast Paper Association Decision

WASHINGTON, D. C., May 27, 1925.—The United States Supreme Court on Monday granted the application of the Federal Trade Commission to review the decision of the San Francisco Court in the Commission's case in docket 934 against the Pacific States Paper Trade Association.

This is the case in which an effort was made by the Commission to agree on a stipulation with the various associations involved in the Commission action. Representatives of the Paper Association and the Commission were unable to reach an agreement and following extended hearings a cease and desist order was issued against the Association by the Commission. The Association appealed the order of the Commission in the Circuit Court in San Francisco. The Court's decision was practically a 50-50 victory. The Commission appealed to the Supreme Court to rehear the case and the Commission's application was granted on Monday.

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Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
Wednesday, May 27, 1925.

The chemical market is not in a news-making mood at this time and there has been little change in conditions since the report in this column was written a week ago. Perhaps the most interesting phase of the market is the present strength shown by the alkalis, these having shown a very appreciable improvement during the past week. The alkali men say they have a good tonnage moving and that business just now is even better than they expected although their expectations had been high. The alkali situation has brought more or less cheer to the whole market for it is likely to have a general effect in making things better. Outside of that, the market's condition has been none too encouraging during the week. A betterment which is constantly being looked for did not materialize, business was practically confined to the routine bookings and there was a general apathy almost typical of the summer slump which by all rights should not come for a few weeks yet. Prices, however, are holding firm and the market has apparently set its face solidly against price cutting and concession granting. As is always the case, there are here and there instances of sales being made with some sort of string attached but these are only isolated cases and do not make the market. Back of each instance of concession granting there is a story, some unusual circumstance or condition which does not apply to the market as a whole. Reports of business conditions throughout the country continue to be more or less conflicting. Some are very encouraging and some are directly opposite. An unprejudiced study of them all indicates that business as a whole has not greatly deviated one way or the other from the position it held a month ago. The hot weather is the next element to be coped with and business men will be watching with eager eyes to see how American business arises to the occasion during the slow months of the year.

BLANC FIXE.—There has been absolutely no change as far as blanc fixe is concerned. The demand is keeping up exceedingly well considering the fact that the consumers are apparently taking little thought for the morrow and are limiting their buying to the needs of the hour. The pulp is selling at from $60 to $70 a ton, and the powder at from $75 to $90 a ton.

BLEACHING POWDER.—Although the situation as regards bleaching powder is none too good, the manufacturers are showing no indication that they even consider any deviation from the present price. It has been felt for a long time that the price would ultimately come down but apparently the manufacturers are secure enough in their position to keep the price where it is and it is evident that that is just what they intend doing. The buyers are at last taking the situation gracefully but naturally enough they are not buying in any greater quantity than is really necessary. The price still stands at 1.90 cents a pound.

CAUSTIC SODA.—There is a fair call for caustic soda—better, in fact, than two or three weeks ago. The demand is even and keeps the available stock down to a satisfactory maximum. It is quoted at from 3.10 to 3.15 cents a pound.

CASEIN.—Casein is just about as it was a week ago which is very satisfactory. Despite a slight fluctuation from 12 to 13 cents a pound, most sales are being made at the happy medium of 12½ cents.

CHINA CLAY.—The China clay market is firming up. For a long period it has been enjoying unusual prosperity unbroken except for a slight reaction which came in March. Last week it started to show improvement and the past week has seen it continuing with every prospect of placing China clay on an even firmer basis. From $16 to $20 a ton is the price asked for the imported grades while the domestic grades are bringing from $12 to $15.

CHLORINE.—Chlorine is following in the trail of bleaching powder. It is doing satisfactorily everything taken into consideration. The price remains at from $4.50 to $7.00 a pound in tanks.

ROSIN.—Rosin continues to participate in a banner demand and is inclined to be erratic as to price, changes occurring suddenly and some of them being almost radical. During the past week the price has been fluctuating although it has never gotten far away from the quotation given it in this column a week ago. That is about where it rested at this writing, from $6.90 to $7.10 as quoted at the naval stores centers.

SALT CAKE.—Salt cake is still doing well. While the spot buying is light, the contract withdrawals are good, the buyers taking out their regular contracted for supplies on time. Of course production is not as great as it was a couple of months ago but there are sufficient orders to keep the manufacturers fairly busy. In the meanwhile there is only a nominal supply in the market and it is not accumulating in any unhealthy manner. The price is from $17 to $20 a ton.

SODA ASH.—Soda ash is apparently coming back after a temporary slowing up during the last two weeks. Its demand has shown a very encouraging improvement during the week. The outlook at this time is considerably better than it has been for some weeks. The price is maintained at 1.38 cents a pound on a flat basis at the works.

SULPHATE OF ALUMINUM.—The report of sulphate of aluminum in last week's issue still holds good for there has been no change. There are rumors and talk of concessions given and, while it may be that sales have been made at a reduced figure, the sales have not been of sufficient amount so that the market is taking any cognizance of them. The commercial grades are selling at from 1.40 to 1.45 cents a pound at the Eastern works and the iron free at from 2.10 to 2.25 cents a pound.

TALC.—Talc keeps on doing well and the price is still lingering at from $17 to $18 a ton.

Verdict Against Finch, Pruyn in Pulpwood Case

GLENS FALLS, N. Y., May 25, 1925.—A jury in Supreme Court at Lake George late last Friday returned a verdict of $10,000 in favor of John and Frank Gallagher, lumber men of Minerva, against Finch, Pruyn & Co., of this city, in an action brought for breach of contract. The jury deliberated for less than an hour. The plaintiffs sued to recover about $30,000 which they alleged they would have made had they been allowed to continue operating under a two year contract with the defendant. They contended that they stood to make a substantial profit cutting pulpwood on the Hoffman watershed in Essex county at $12 a cord and that the defendant stopped them when the contract had still a year to go.

The Finch, Pruyn & Co. defense contended that the plaintiffs were financially unable to continue work and that they abandoned the job. They produced witness to this effect and offered in evidence statements of the North Creek National Bank on the condition of the Gallagher's finances.

Attorney William T. Moore summing up for the defendant company declared that the only questions to be decided by the jury were the differences in the testimony of the Gallaghers and George N. Ostrander, vice president and manager of the woodlands' department of Finch, Pruyn & Co. he termed the claims of the Gallaghers as preposterous.

Attorney Walter A. Chambers in presenting the plaintiff's case said that the crux of the situation lay in the fact that the company broke a contract to have the wood cut at $12 a cord and re-let the same area to another contractor at $7 a cord saving $5 on each cord. Following the receipt of the verdict Judge Newton J. Herrick, presiding, denied a motion of the defense to set aside the verdict on the ground that it was excessive. George N. Ostrander, William T. Moore, and Beecher S. Clother represented Finch, Pruyn & Co. and Walter A. Chambers with Willard White, as counsel, tried the case for the Gallaghers.

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For wrapping all moist and greasy foodstuffs.

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For tight-sealing cartons and wrapping dry foods.

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All standard sizes, weights and colors.

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"The PERFECT PACKING BOX"

Strongest—Freight Saving

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We Protect the PAPER DEALER both on FIBRE-BOARD and CARTONS

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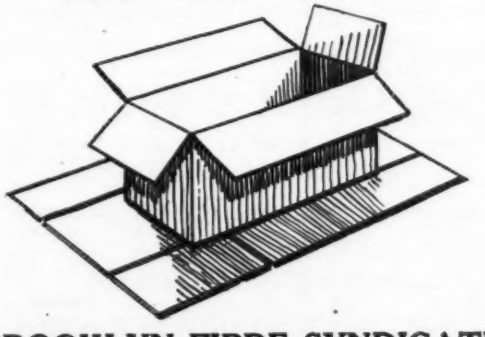

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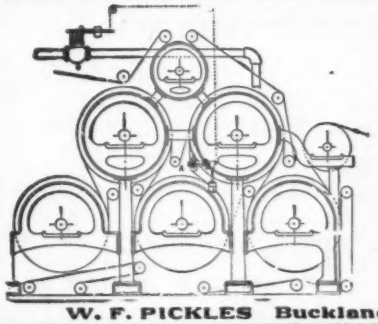

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ENGLISH AND AMERICAN

Market Quotations

Quoted by Hepburn & Co., No. 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
Abitibi Power and Paper, Gen. 6s 1940	100	102*
Advance Bag and Paper, 7s 1943	98	100*
Aroostook Pulp and Paper, 6s 1925	99	...
Bastrop Pulp and Paper, 7½s 1932	104	108*
Brompton Pulp and Paper, 6s 1927	93	95
Beaver Board, 8s 1933	92	94
Bedford Pulp and Paper, 6½s 1942	98	...
Berkshire Hills Paper Co., 8s 1941	...	80
Beaver Board, N. Y. Curb, 8s 1933	92	95
Beaver Products Corp., 7½s 1942	104	106
Belgo Canadian Paper, 6s 1943	...	101
Brown Paper Co., 8s 1931	102	...
Berlin Mills, 5s 1931	98	...
Bryant Paper Co., 6s 1942	98	101
Brown Company Serial, 6s 1925-43	97	100
Central Paper, 6½s 1925-42	91	94
Cape Breton Pulp and Paper, 6s 1932	98	102
Carthage Sulphite Pulp and Paper, 8s 1941	40	50
Champion Coated Paper Co., 6s 1924-34	...	102
Champion Fibre Co. Notes, 8s 1930	101	...
Cherry River Paper, 5s 1929	97	100*
Chicoutimi Pulp Co., 6s 1943	63	...
Donnaconna Paper Co., Ltd., 6s 1940	99	101
Eddy Paper, 7s 1931	97	...
Eagle Paper, 6½s 1932	96	100
Escanaba Paper, 6s 1933	85	...
Fox River Paper, 7s 1931	100	...
Fort Orange Paper Co, 7s 1942	95	99
Eddy Paper Co., 7½s 1931	95	...
Gilbert Paper Co., 7s 1927	96	...
Gilbert Paper Co., 6½s 1923-29	101	102*
Hammermill Paper Co., 6s 1930-39	99	...
Hercule Corp'n, 8s 1936	98	101
Hummell, Ross Fibre Corp., 7s 1925	90	...
Jessup & Moore Paper Co., 6s 1939	90	97
Kenmore Pulp and Paper Co., 6s 1937	89	...
Lake Superior Pulp and Paper, 6s 1941	105	...
Mattagami Pulp and Paper, 6s 1937	90	...
Marinette & Menominee, 7½s 1936	103	105
Mengel Company, 7s 1934	101	...
National Paper and Type, 6s 1947	96	99*
Oswego Falls Corp., 8s 1942	101	103*
Orono Pulp and Paper, 5s 1941	93	96*
Orono Pulp and Paper, 6s 1943	97	100*
Oxford Paper Co., 6s 1947	99	...
Paterson Parchment Paper, 5½s 1927-28	98	100
Paterson Parchment, 6s 1938	97	99
Parker, Young Co., 6½s 1944	92	96
Price Bros. & Co., Ltd., 6s 1943	100	102
Provincial Paper Mills, Ltd., 6s 1940	97	...
Riordon Co., Series A, 8s 1940	113	115
Riordan Paper, 6s 1924	91	94
Riordan Pulp and Paper, Ltd., 6s, 1929	33	35
River Raisin Paper, 8s 1936	104	106
St. Regis Paper, 6½s, 1929-35	97	102
Smith (Howard) Paper Mills, 7s 1941	96	97½
Smith (Howard) Paper Mills, 6s 1934	96	...
St. Croix Paper, 5s 1923-37	95	...
Stevens & Thomson Paper, 6s 1942	88	92
Spanish River Pulp and Paper, 6s 1931	105	108
Spanish River Pulp and Paper, Gen 8s 1941	106	109
Ticonderoga Pulp and Paper Co., 6s, 1940	91	95
Ticonderoga Pulp & Paper 1-5, 1930	88	93
Whittaker Paper, 1st 7s 1942	96	...
Watab Paper Co., 6½s 1942	101	...
Waterway Paper Products, 7s 1924-27	95	100
Wayagamack Pulp and Paper, Ltd., 6s 1951	87	90

STOCKS	BID	ASKED
Abitibi Power and Paper, Com	66	68
Abitibi Power and Paper, Pfd	108	...
Advance Bag and Paper, Com	8	12*
Advance Bag and Paper, Pfd	77	...
Beaver Board, Com	5	7
Beaver Board, Pfd	38	41
Bryant Paper, Cap	12	...
Bryant Paper, Pfd	9	...
Brompton Pulp and Paper, Cap	24	25
Chicago Mill & Lumber Co., Com	63	...
Chicago Mill & Lumber Co., Pfd	98	104
Crown Williamette, Com	93	98*
Crown Williamette, 7% A, Pfd	98	SW
Donnaconna Paper, Pfd	95	100
Great Northern Paper, Cap	255	265
Howard Smith Paper Co., Com	22	23
Howard Smith Paper Co., Pfd	28	30
Jessup & Moore Paper, Pfd	73	76
International Paper Co., Com	71	73
International Paper Co., Pfd	81	83
Mengel Company, Com	54	56
Mengel Company, Pfd	78	...
Oxford Papers, Com	93	97
Oxford Paper Co., Pfd	98	...
Provincial Paper Co., Com	94	98
Provincial Paper Co., Pfd	99	...
Price Brothers, Cap	38	39
St. Croix Paper	185	215
St. Maurice Paper Co., Cap	86	87
St. Regis Paper Co., Cap	54	56
Smith (Howard) Paper Co., Ltd., Com	41	42
Smith (Howard) Paper Co., Ltd., Pfd	101	103
Spanish River Pulp and Paper, Com	105	107
Spanish River Pulp and Paper, Pfd	115	117
Ticonderoga Pulp and Paper, Cap	145	...
West Virginia Pulp and Paper, Cap	44	47
West Virginia Pulp and Paper, Pfd	85	100
Whittaker Paper, Com	50	...
Whittaker Paper, Pfd	13	...

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub Sized	10.00	@15.00
Engine Sized	8.00	@11.00
News—		
Rolls, contract	3.50	@ 3.90
Rolls, transit	3.75	@ 4.25
Sheets	4.00	@ 4.25
Side Runs	3.25	@ 4.00
Book, Cased—		
S. & S. C.	7.00	@ 9.75
M. F.	6.25	@ 8.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream		
White No. 1	.70	@ .90
Colored	1.00	@ 2.00
White No. 2	.65	@ .75
Anti-Tarnish	1.25	@ 2.50
Kraft	.85	@ .95
Manila	.70	@ .80
Kraft—		
No. 1 Domestic	5.50	@ 6.25
No. 2 Domestic	4.50	@ 4.75
Imported	5.50	@ 5.75
Manila—		
No. 1 Jute	9.25	@ 9.50
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.00
Fibre Papers—		
No. 1 Fibre	5.50	@ 6.00
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.50	@ 2.75
S. Screening	3.00	@ 3.50
Card Middler	4.00	@ 5.00
Boards—per ton—		
News	45.00	@47.50
Straw	57.00	@60.00
Chip	42.00	@45.00
Binders' Boards	72.50	@77.50
Sgl. Mla. Ll. Chip	60.00	@62.50
Wood Pulp	70.00	@75.00
Container	62.50	@67.50
Sulphate Screenings—		
Coarse	.80	@ .90
Refined	1.75	@ 2.00
Ground Wood—		
Screenings	20.00	@25.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	33.00	@37.00

(F. o. b. Mill)

No. 1 Domestic	28.00	@32.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.75	@ 4.50
Easy Bleaching	2.90	@ 3.25
No. 1 strong unbleached	2.75	@ 3.25
No. 2 strong unbleached	2.45	@ 2.80
No. 1 Kraft	2.95	@ 3.20
Sulphate—		
Bleached	3.75	@ 3.95

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.75	@ 4.50
Easy Bleaching Sulphite	2.90	@ 3.25
News Sulphite	2.45	@ 2.75
Mitscherlich	3.25	@ 3.75
Kraft (Domestic)	2.70	@ 3.25
Soda Bleached	4.00	@ 4.25

Domestic Rags

New Rags

Prices to Mill, f. o. b. N. Y.

Shirt Cuttings—		
New White, No. 1	14.50	@15.25
New White, No. 2	8.00	@10.00
Silesias No. 1	10.50	@11.50
New Unbleached	14.00	@15.00
Washables	6.50	@ 9.25
Fancy	975	@10.25
Blue Overall	10.25	@11.25
New Blue Prints	7.50	@ 8.50
New Soft Blacks	5.75	@ 6.20
Mixed Khaki Cuttings	5.75	@ 6.50
Pink Corset Cuttings	10.50	@11.00
Pink Muslin	10.25	@10.75
New Light Seconds	3.25	@ 3.50
O. D. Khaki Cuttings	6.50	@ 7.50
Men's Corduroy	6.25	@ 6.75
New Mixed Blacks	4.00	@ 4.50

Old Rags

White, No. 1—		
Repacked	8.00	@ 9.00
Miscellaneous	6.50	@ 7.00
White, No. 2—		
Repacked	4.75	@ 5.25
Miscellaneous	4.00	@ 4.50
St. Soiled, White	3.00	@ 3.50
Thirds and Blues—		
Repacked	4.00	@ 4.25
Miscellaneous	3.25	@ 3.50
Black Stockings	4.00	@ 4.50
Roofing Rags—		
Cloth Strippings	3.15	@ 3.25
No. 1	3.15	@ 3.25
No. 2	2.85	@ 3.05
No. 3	2.00	@ 2.25
No. 4	2.75	@ 2.85
No. 5A	1.80	@1.50

Foreign Rags

New Light Silesias	9.50	@10.50
Light Flannelettes	11.00	@12.00
Unbl'ched Cottons	14.00	@15.00
New White Cuttings	14.00	@15.00
New Light Oxfords	10.00	@11.00
New Light Prints	9.00	@10.00
New Mixed Cuttings	4.25	@ 4.75
New Dark Cuttings	4.00	@ 4.10
No. 1 White Linens	10.25	@11.25
No. 2 White Linens	7.50	@ 8.50
No. 3 White Linens	6.25	@ 6.75
No. 4 White Linens	4.50	@ 5.50
Old Extra Light Prints	4.25	@ 4.75
Ord. Light Prints	3.75	@ 425
Med. Light Prints	3.75	@ 4.25
Dutch Blue Cottons	4.00	@ 4.50
Ger. Blue Cottons	4.00	@ 4.25
Ger. Blue Linens	425	@ 4.75
Checks and Blues	3.50	@ 3.75
Linsay Garments	2.60	@ 2.70
Dark Cottons	2.50	@ 2.60
Shoppery	2.40	@ 2.50
French Blues	4.00	@ 4.50

Bagging

Prices to Mill F. o. b. N. Y.

Gunny No. 1—		
Foreign	3.10	@ 3.25
Domestic	3.15	@ 3.25
Wool Tares, light	2.60	@ 2.70
Wool, Tares, heavy	2.70	@ 2.80
Bright, Bagging	2.55	@ 2.65
Mixed Bagging	2.30	@ 2.40
Sound Bagging	2.10	@ 2.20
Roofing Bagging	1.60	@ 1.70
Manila Rope—		
Foreign	6.25	@ 6.75
Domestic	6.75	@ 7.25
New Bu. Cut	3.50	@ 3.75
Hessian Jute Threads—		
Foreign	4.00	@ 4.25
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

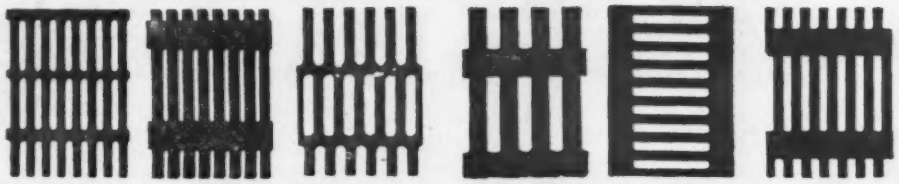
Shavings—		
Hard, White, No. 1	3.50	@ 3.75
Hard, White, No. 2	3.15	@ 3.40
Soft, White, No. 1	2.90	@ 3.15
Flat Stock—		
Stitchless	1.45	@ 1.55
Overissue Mag	1.45	@ 1.55
Solid Flat Book	1.40	@ 1.50
Crumpled No. 1	1.25	@ 1.35
Solid Book Ledger	1.80	@ 1.90
Ledger Stock	1.60	@ 1.70
New B. B. Chips	.65	@ .75
Manilas—		
New Env. Cut	2.45	@ 2.60
New Cut. No. 1	1.75	@ 2.00
Extra No. 1 old	1.40	@ 1.50
Print	1.20	@ 1.30
Container Board	.70	@ .90
Bogus Wrapper	1.00	@ 1.10
Old Krafts Machine compressed bales	2.00	@ 2.10
News—		
No. 1 White News	1.90	@ 2.05
Strictly Overissue	1.05	@ 1.15
Strictly Folded	.95	@ 1.05
No. 1 Mixed Paper	.65	@ .75
Common Paper	.45	@ .55

Twines

Cotton—(F. o. b. Mill)—		
No. 1	.43	@ .48
No. 2	.41	@ .43
No. 3	.40	@ .42
India, No. 6 basis—		
Light	.19	@ .20
Dark	.17	@ .19
B. C., 18 basis	.39	@ .41
A. B. Italian, 18 Basis	.56	@ .61

PERFORATED METALS

All sizes and shapes of Holes



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Write for prices and particulars

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ATHENS, WIS.

Finished Jute—			
Dark, 18 basis...	.30	@	.31
Light, 18 basis...	.28	@	.30
Jute Wrapping, 3-6 Ply—			
No. 1	.20	@	.23
No. 2	.18	@	.20
Tube Rope—			
4-ply and larger.	.15	@	.17
Fine Tube Yarn—			
5-ply and larger.	.20	@	.28
4-ply	.21	@	.24
3-ply	.22	@	.25
Unfinished India—			
Basis	.14	@	.15
Paper Makers' Twine			
Balls	.12	@	.13
Box Twine, 2-3 ply	.14	@	.15
Jute Rope	.20	@	.40
Amer. Hemp, 6....	.30	@	.32
Sisal Hay Rope—			
No. 1 Basis.....	.14	@	.16
No. 2 Basis.....	.10	@	.12
Sisal Lath Yarn—			
No. 1	.14	@	.15
No. 2	.11	@	.13
Manila Rope	.18	@	.19

CHICAGO

Paper

F. o. b. Mill

All Rag Bond.....	35	@	40
No. 1. Rag Bon..	25	@	35
No. 2 Rag Bond..	14	@	25
Water Marked Sul-Phite	9	@	12
Sulphite Bond.....	7	@	10¼
Sulphite Ledger ...	9½	@	12
Superfine Writing..	18	@	24
No. 1 Fine Writing	14	@	18
No. 2 Fine Writing	12	@	14
No. 3 Fine Writing	9	@	12
No. 1 M. F. Book..	5½	@	7½
No. 1 S. & S. C. Book	6½	@	7¾
Coated Book	8	@	10
Coated Label	8	@	10
News—Roll, mill...	3½	@	4¼
News—Sheets, mill.	3¾	@	4¾
No. 1 Manila.....	4½	@	5½
No. 1 Fibre.....	4½	@	5¼
No. 2 Manila.....	3¾	@	4¼
Butchers' Manila...	4	@	4½
No. 1 Kraft.....	5¾	@	6¼
No. 2 Kraft.....	4.50	@	5.00
Wood Tag Boards..	4¼	@	6
Sulphite Screenings.	3.00	@	3.25
Manila Tissue, 24x36 sheet	7½	@	8
White Tissue, 20x30 sheet	7	@	7¼

Boards, per ton—
(Delivered Central Territory)

Plain Chip 45.00		@	47.50
Solid News 47.50		@	50.00
Manila Line Chip.57.50		@	60.00

Container Lined—
(Delivered Central Territory)

85 Test	—	@	75.00
100 Test	—	@	80.00

Old Papers

F. o. b. Chicago

Shavings—			
No. 1 Hard White	3.15	@	3.25
White Envel. Cuttings.....	3.15	@	3.25
No. 1 Soft Shav.	2.65	@	2.75
No. 1 Mixed.....	1.45	@	1.50
No. 2 Mixed.....	1.15	@	1.20
Ledger and Writings	1.50	@	1.55
Solid Books	1.40	@	1.45
No. 1 Light Books.	1.00	@	1.05
Blanks	1.90	@	1.95
Kraft	2.05	@	2.10
New Kraft Cuts.	2.30	@	2.35
Manila Envelope Cuttings.....	2.40	@	2.50
Ex. No. 1 Manila..	2.00	@	2.10
Print Manila	.90	@	.95
Folded News (over-issue)	.85	@	.90
Old Newspapers—			
No. 1	.70	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.55	@	.60
No. 2.....	.50	@	.55
Straw Clippings....	.75	@	.80
Binders' Clippings..	.70	@	.65
Roofing Stock, f. o. b. Chicago, Net Cash—			
No. 1	30.00	@	35.00
No. 2	28.00	@	33.00
No. 3	26.00	@	31.00
No. 4	20.00	@	25.00

BOSTON

Paper

Ledgers—			
Sulphite	.08½	@	.18
Rag content	.18	@	.36½
All Rag	.38	@	.50
Bonds—			
Sulphite	.08½	@	.12
Rag Content.....	.17	@	.45
All Rag	.36½	@	.51
Writings	.08	@	.20
Superfines	.22	@	.50
News	.05	@	.07
Book, Super	.09	@	.14
Book, Super.....	.08½	@	.13
Book, Coated.....	.09	@	.20
Coated Litho.....	.09½	@	.15
Label	.09½	@	.15
Jute Manila No. 1.	.11	@	.12
Manila, Sul. No. 1.	.05	@	.05
Manila, Sul. No. 2.	.03¾	@	.04¼
No. 1 Kraft	.06¼	@	.06½
No. 2 Kraft	.05¾	@	.05½
Common Bogus	.03½	@	.04
Straw Board	—	@	50.00
News Board	—	@	45.00
Chip Board	—	@	42.50
Single Manila Pulp lined board.....60.00		@	65.00
Single White, patent coated board 77.50		@	85.00
Wood Pulp Board..80.00		@	85.00
Binder Boards 75.00		@	85.00
Tarred Felts—			
Regular 61.00		@	63.00
Slaters 66.00		@	68.00
Best Tarred, 1 Ply, roll	1.50	@	1.60
Best Tarred, 2 Ply, roll	1.70	@	1.80
Best Tarred, 3 Ply, roll	2.00	@	2.10

Old Papers

Shavings—			
No. 1 Hard White	4.00	@	4.25
White Blank News.	1.75	@	2.00
Manila Env. Cuttings.....	2.80	@	3.00
No. 2 Hard White	3.25	@	3.50
No. 1 Soft White..	.04½	@	—
No 2 Soft White..	.03¼	@	—
No. 1 Mixed.....	1.60	@	1.75
No. 2 Mixed.....	1.25	@	1.50
Solid Ledger Stock.	2.00	@	2.25
Writing Paper	—	@	1.70
No. 1 Books, Heavy	1.75	@	1.85
No. 1 Books, Light.	—	@	1.50
No. 1 New Manila.	2.50	@	2.60
No. 1 Old Manila.	1.75	@	2.00
Print Manila	1.05	@	1.20
Old Kraft	2.00	@	2.25
Overissue News ...	1.00	@	1.20
Old Newspapers ...	.70	@	.75
No. 1 Mixed Paper.	.60	@	.65
Box Board, Chip...	.60	@	.65

Bagging

Price f. o. b. Boston

Gunny No. 1—			
Foreign	—	@	3.00
Domestic	—	@	3¼
Manila Rope	6.00	@	6.50
Mixed Rope	1.50	@	2½
Scrap burlaps....	—	@	3.00
Wool Tares, heavy.	—	@	3.00
Mixed Strings...	—	@	2.25
New Burlap Cuttings	—	@	3.75

Domestic Rags (New)

Price f. o. b. Boston

Shirt Cuttings—			
New White No. 1	.15½	@	.15
Silesias, No. 1..	.11	@	—
New Unbleached.	.14¼	@	.15
Washable	.07¾	@	.08
Fancy	.10½	@	—
Cottons—According to Grades—Blue—			
Blue overalls....	.12½	@	—
New Black, soft...	.07	@	—
Khaki Cuttings....	.07	@	—
Corduroy	.04	@	.04½
New Canvas.....	.12	@	.13½

Domestic Rags (Old)

Price f. o. b. Boston

White No. 1.....10.00		@	—
Repacked	9.50	@	—
Miscellaneous	8.50	@	—
White No. 2—			
Repacked	6.50	@	—
Miscellaneous ...	5.25	@	—
Thirds and Blues—			
Repacked	5.00	@	—
Miscellaneous ...	3.50	@	—
Roofing Stock—			
No. 1.....	3.90	@	—
No. 2.....	3.00	@	—
No. 3.....	2.50	@	—
No. 4.....	2.00	@	—

PHILADELPHIA

Paper

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2.....	.16	@	.25
Fine, No. 3.....	.12	@	.20
Book, M. F.....	.06	@	.07
Book, S. S. & C..	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph..	.09	@	.12
Label	.09	@	.12
News	.03¼	@	.04
No. 1 Jute Manila.	.09½	@	—
Manila Sul., No. 1.	.04½	@	.06
Manila No. 2.....	.04	@	.04½
No. 2 Kraft.....	.05	@	.05½
No. 1 Kraft.....	.06¼	@	—
Common Bogus....	.02¾	@	—
Straw Board.....	55.00	@	60.00
News Board	52.50	@	—
Chip Board	52.50	@	—
Wood Pulp Board..	4.50	@	5.00

(Carload Lots)

Binder Boards—			
Per ton 75.00		@	80.00
Carload lots 65.00		@	70.00
Tarred Felts—			
Regular 61.00		@	63.00
Slaters 66.00		@	68.00
Best Tarred, 1-ply (per roll)	1.70	@	1.80
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply.	2.00	@	2.10

Bagging

F. o. b. Phila.

Gunny, No. 1—			
Foreign	3.00	@	3.25
Domestic	3.00	@	3.25
Manila Rope.....	6.25	@	6.50
Sisal Rope	2.50	@	—
Mixed Rope	1.50	@	1.75
Scrap Burlaps....	2.25	@	2.50
Wool Tares, heavy.	2.00	@	2.13
Mixed Strings...	1.25	@	—
No. 1, New Lt. Burlap	3.50	@	3.75
New Burlap Cuttings	3.75	@	—

Old Papers

F. o. b. Phila.

Shavings—			
No. 1 Hard White	3.65	@	3.70
No. 2 Hard White	3.25	@	3.40
No. 1 Soft White	2.70	@	2.80
No. 2 Soft White	1.80	@	2.00
No. 1 Mixed....	—	@	1.50
No. 2 Mixed....	1.25	@	1.30
Solid Ledger Stock.	1.75	@	1.90
Writing Paper.....	1.60	@	1.65
No. 1 Books, heavy	1.35	@	1.40
No. 2 Books, light.	1.15	@	1.25
No. 1 New Manila.	2.40	@	2.50
No. 1 Old Manila..	1.50	@	1.75
Container Manila ..	.85	@	.90
Old Kraft	2.00	@	2.10
Over issue News...	.90	@	.95
Old Newspaper....	.60	@	.65
No. 1 Mixed Paped	.50	@	.55
Common Paper....	.30	@	.35
Straw Board, Chip.	.60	@	.65
Binders Bd., Chip..	.60	@	.65

Domestic Rags—New.
Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.13½	@	.14
New White, No. 2	.06½	@	—
Silesias, No. 1...	.10½	@	.11
New Unbleached.	.14	@	.14½
Washable	.07¾	@	.08¼
Fancy	.09½	@	.10
Cottons—according to grades—			
Blue Overall....	.11	@	.11½
New Blue	.04	@	.04½
New Black Soft.	.06	@	.06¾
New Light Seconds	.03½	@	.03¾
Khaki Cuttings..	.06½	@	.07
Corduroy	.04	@	.04½
New Canvas	.08¾	@	.09
New Black Mixed	.05	@	.05¼

Old

White, No. 1—			
Repacked	7.00	@	7.25
Miscellaneous ...	6.25	@	6.50
White, No. 2—			
Repacked	.05½	@	.05¾
Miscellaneous ...	.05	@	.05¼
Thirds and Blues—			
Repacked	3.75	@	4.00
Miscellaneous ...	3.15	@	3.25
Black Stockings..	4.25	@	4.50
Roofing Stock—			
No. 1	2.00	@	2.15
No. 2	1.90	@	2.00
No. 3	1.25	@	1.35
No. 4	1.10	@	1.20
No. 5A	1.10	@	1.15
B	1.05	@	1.10
C	1.00	@	1.05

TORONTO

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	.10½	@	.12½
Light tinted.....	.11	@	.13½
Dark tinted.....	.12½	@	.15
Ledgers (sulphite)..	—	@	.13
Ledgers No. 1.....	.36	@	—
Ledgers No. 2.....	.27	@	—
Writing	.09½	@	
Writing S. C.....	.10	@	
News f. o. b. Mills—			
Rolls (carloads)..	3.65	@	—
Sheets (carloads).	—	@	4.50
Sheets (2 tons or over)	—	@	4.75
Book—			
No. 1 M. F. (carloads)	8.00	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.50	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and litho 14.50		@	—
No. 2 Coated and litho 13.50		@	—
No. 3 Coated and litho 12.75		@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.75	@	—
White Rag	5.25	@	—
"B" Manila	5.50	@	—
No. 1 Manila...	6.50	@	—
Fiber	6.50	@	—
Kraft, M. F.....	7.00	@	—
M. G.	7.15	@	—

Pulp

(F. o. b. Mill)

Ground wood.....	30.00	@	32.00
Sulphite easy bleaching	60.00	@	65.00
Sulphite news grade	55.00	@	58.00
Sulphite, bleached.	80.00	@	85.00
Sulphate 62.50		@	65.00

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut..	3.60	@	—
Soft White Book shavings	3.25	@	—
White Blk, News.	1.70	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.40	@	—
Solid Ledgers....	1.40	@	—
Manilas—			
New Manila Cut.	—	@	1.60
Printed Manilas..	1.00	@	—
Kraft	2.10	@	2.10
News and Scrap—			
Strictly Overissue	.80	@	—
Folded News....	.80	@	—
No. 1 Mixed Papers	.55	@	—

Domestic Rags—
Price to mills, f. o. b. Toronto
Per lb.

No. 1 White shirt cuttings	.15	@	.15¼
No. 2 White shirt cuttings	.08	@	.08½
Fancy shirt cuttings	.09¾	@	.10
No. 1 Old Whites..	—	@	—
Third and blues....	.05½	@	.05¾